United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Ohio Department of Natural Resources, Division of Soil and Water Conservation; Ohio Agricultural Research and Development Center; Ohio State University Extension; and Coshocton County Commissioners

Soil Survey of Coshocton County, Ohio

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

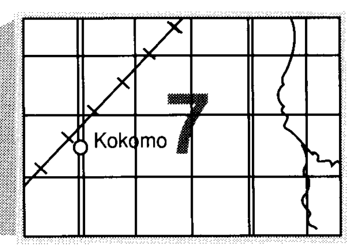
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

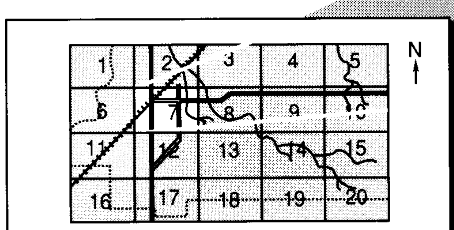
To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

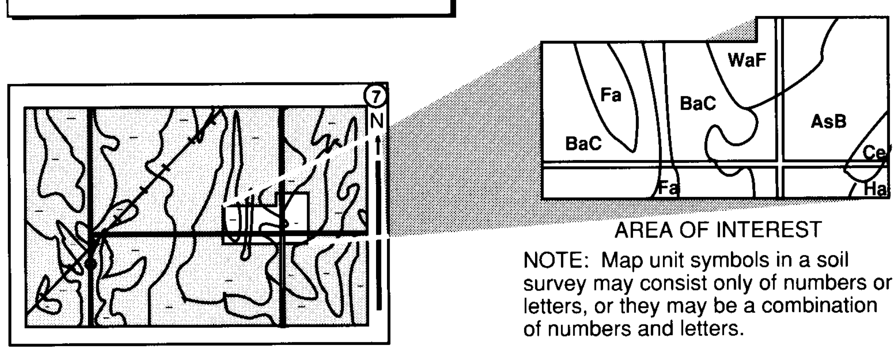
The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



MAP SHEET



INDEX TO MAP SHEETS



MAP SHEET

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1991. This survey was made cooperatively by the Natural Resources Conservation Service; the Ohio Department of Natural Resources, Division of Soil and Water Conservation; the Ohio Agricultural Research and Development Center; the Ohio State University Extension; and the Coshocton County Commissioners. The survey is part of the technical assistance furnished to the Coshocton Soil and Water Conservation District. Financial assistance was provided by the Coshocton County Commissioners.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Contour stripcropping in an area of Coshocton-Westmoreland complex, 15 to 25 percent slopes.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov.

Contents

Issued 2001

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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State Conservationist
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Soil Survey of
Coshocton County, Ohio

By J.W. Hempel and T.E. Graham, Natural Resources Conservation Service

Fieldwork by J.W. Hempel, G.L. Bowden, T.P. D’Avello, R.M. Gehring, J.A. Glanville, T.E. Graham, J.A. Groves, L. Morris, C.E. Redmond, J.E. Seaholm, and J.R. Steiger, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Ohio Department of Natural Resources, Division of Soil and Water Conservation; the Ohio Agricultural Research and Development Center; the Ohio State University Extension; and the Coshocton County Commissioners

Coshocton County is in the east-central part of Ohio (fig. 1). It has a total area of 362,675 acres, or about 567 square miles. Coshocton, near the center of the county, is the county seat. In 1990, the population of the county was 35,427 (U.S. Department of Commerce 1991).

Farming is the major enterprise in the county, although industry and coal mining are important to the local economy. The broad river valleys are the major cropland areas. The soils in these areas can be highly productive. The soils in the uplands generally are steep and highly dissected. Many sloping and moderately steep soils are farmed. Conservation tillage systems, contour stripcropping, and crop rotations help to control erosion on these strongly sloping soils. The steeper areas are used as woodland or pasture.

Flood-control measures have been established on Wills Creek and on the Walhonding and Tuscarawas Rivers. They have not been established on Killbuck Creek, and flooding is a frequent hazard along this waterway. It is an occasional hazard along Mill Creek and Doughty Creek, which are small streams.

This soil survey updates the survey of Coshocton County published in 1905 (Rice and Geib 1905). It provides additional information, soil interpretations, and larger scale maps, which are on a photographic background and show the soils in greater detail. This survey also updates the “Soils of the North Appalachian Experimental Watershed” (Kelly and others 1975).

Figure 1.—Location of Coshocton County in Ohio.

General Nature of the County

This section provides general information about the county. It describes climate; history; physiography, relief, and drainage; natural resources; geology;

agriculture and industry; and transportation facilities in the county.

Climate

Coshocton County is cold in winter and quite hot in summer. Winter precipitation, frequently snow, results in a good accumulation of soil moisture by spring and minimizes drought during summer on most soils. Normal annual precipitation is adequate for all of the crops that are suited to the temperature and length of growing season in the area.

Table 1 gives data on temperature and precipitation for the survey area as recorded in the period 1951 to 1988 at the North Appalachian Experimental Watershed Research Station, which is northeast of Coshocton. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 27 degrees F and the average daily minimum temperature is 19 degrees. The lowest temperature on record, which occurred on January 1, 1977, is -21 degrees. In summer, the average temperature is 70 degrees and the average daily maximum temperature is 79 degrees. The highest recorded temperature, which occurred on June 6, 1971, is 97 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 37 inches. Of this, about 22 inches, or 59 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 18 inches. The heaviest 1-day rainfall during the period of record was 4.63 inches on July 5, 1969. Thunderstorms occur on about 41 days each year, and most occur in summer.

The average seasonal snowfall is 30 inches. The greatest snow depth at any one time during the period of record was 14 inches. On the average, 16 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 60 percent of the time possible in summer and 40 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, in spring.

Tornadoes and severe thunderstorms occur occasionally. These storms are usually local in extent and of short duration. They cause damage in a variable pattern.

History

The first known inhabitants of Coshocton County were the Mound Builders. Little is known about these mysterious people. The area was occupied later by the Delaware and Wyandot Tribes, of which the Delaware was the most predominant. During that time, the area was an unspoiled wilderness with such an abundance of animals, fish, and birds that it was practically unnecessary to till the ground for subsistence living.

The name Coshocton is a modification of the old Indian town name Goschachgunk, which was located on the spot where the city of Coshocton now lies. The pioneers of Coshocton County were largely from the New England States, Virginia, Pennsylvania, and Maryland (Hill 1881). In 1800, Charles Williams became the first known European to reside in the county.

Coshocton County was officially organized in 1811. At that time, it included a considerable part of what is now Holmes County. The current boundaries of the county became fixed in 1824.

In 1811, Coshocton County had a population of about 1,500. In 1820, it had a population of 7,086. By 1840, the population had grown to 21,599, and by 1880, it had reached 26,763. The sharp increase in population between 1820 and 1840 was due largely to the opening of the Ohio Erie Canal. Construction on the part of the canal that is in Coshocton County took place between 1827 and 1830. Roscoe, Canal, Lewisville, and Orange became principal ports for the canal in Coshocton County. The Walhonding Canal was opened in 1847. This canal brought commerce from Mount Vernon to Walhonding and Cavallo.

The importance of canal travel dwindled with the coming of the railroad. The first line was built in Coshocton County between 1851 and 1855.

As early as 1835, coal was mined from the hills of Coshocton County. Mining has steadily increased since those early years, providing many individuals with income and jobs.

Physiography, Relief, and Drainage

The major portion of Coshocton County is in the Western Allegheny Plateau area. A small acreage along the west-central edge of the county is in the Eastern Ohio Till Plain area (USDA 1981). More than 500,000 years ago, the Illinoian glacier swept south, its edge just crossing what is now the Coshocton County line. In this area there is a blanket of glacial till. The glacier also blocked drainageways in Coshocton County and in the adjoining counties. Lakes, which formed in river and stream valleys, remained long enough for lacustrine sediments to accumulate. Meltwater from the glacier deposited outwash sediments in the channels of the larger streams and rivers.

About 15,000 years ago, the Wisconsin glacial period again brought glaciers to Ohio, but this time the glaciers did not reach the county. The soils on terraces on valley sides formed in the lacustrine and outwash deposits that were left.

The unglaciated portion of the county is characterized by steep or very steep hillsides and narrow valleys produced by stream erosion. Relief is generally high. In some places extensive areas of vertical rock faces are on unreclaimed strip-mined sites.

The western part of Coshocton County is drained by the Kokosing and Mohican Rivers and, to a minor extent, by Wakatomika Creek. The Kokosing and Mohican Rivers join to form the east-flowing Walhonding River. The central part of the county is drained by White Eyes, Killbuck, and Mill Creeks and by the Muskingum River, which begins in the City of Coshocton where the Walhonding and Tuscarawas Rivers join. Eastern Coshocton County is drained by the Tuscarawas River and Wills Creek. All of these streams are a part of the Muskingum River watershed.

The highest points in the county are in sections 5 and 6 of Monroe Township. They are about 1,300 feet above sea level on isolated hilltops. The low point of 720 feet above sea level occurs where the Muskingum River exits the county in the southern part of Jackson Township.

Natural Resources

Coshocton County has a variety of natural resources that play an important role in the local economy. The soil is one of the most important natural resources because it provides the base for agricultural and forestry crops.

Coal deposits are very prevalent in the county. There is vigorous mining activity in the eastern two-thirds of the county. The Middle and Lower Kittaning members within the Allegheny System (Nos. 5 and 6) are the most frequently mined coal beds. There are also many abandoned strip mines in the county. Oil and gas also are important natural resources in the county. Wells can be found in all parts of the county and on all types of terrain.

Woodland covers a major portion of the county. Timber is logged for use as sawlogs and pulp. The woodland also offers excellent food and cover for wildlife. White-tailed deer, ruffed grouse, and turkey are abundant in the county.

Gravel and sand deposits are extensive within the county. They are located along the major valleys. Large gravel mines are located near Shady Bend, Coshocton, and Warsaw. Several areas in the county have been mined for clayey shale, which is used in the production of tile and brick.

Geology

The bedrock of Coshocton County is all of sedimentary origin. Two systems are represented—the Mississippian and Pennsylvanian. Only the upper part of the Mississippian is exhibited. It is confined to the lower slopes in the western one-third of the county (Lamborn 1954). The maximum thickness of the exposed beds is about 200 feet. The exposed series, mainly the Logan Formation, consists of fine grained sandstone and siltstone interbedded with shales.

Series from the Pennsylvanian System make up about 85 percent of the landscape of Coshocton County. The series represented are the Allegheny and Pottsville Series and the lower 170 feet of the Conemaugh Series.

The Allegheny Series has outcrops that occur in every township in Coshocton County. The lower members are more extensive than the upper members, with a total thickness of about 170 feet. The Lower and Middle Kittaning coals are of chief economic importance for coal-mining activities in Coshocton County.

The Pottsville Series also has outcrops that occur in every township in Coshocton County. It consists of the lowest members of the Pennsylvanian System. The western half of the county has large exposures of the Pottsville Series at all elevations, but in the eastern half, the exposures are confined mainly to the lower slopes. The total average thickness of the Pottsville Series is about 188 feet.

The Conemaugh Series is the least extensive Pennsylvanian bedrock in Coshocton County. It is mainly confined to the upper slopes of the highest hills in many areas in the southeastern part of the county. It has been almost totally removed in the northeastern townships. The bedrocks of the Conemaugh Series consist almost entirely of sandstones and sandy shales. The maximum thickness of the Conemaugh Series is about 170 feet.

Only a very small portion of Coshocton County has been affected by continental glaciation. The glacial drift in the county is of Illinoian age. It is in the western part of New Castle and Perry Townships. The topography in this area is noticeably less sloping than in other parts of the county because of the leveling effects of the glacier.

The effects of glaciers in Coshocton County are not restricted to this area. Many changes in drainage have been induced through the influence of continental glaciation. In preglacial Ohio, the drainage system was quite different from the present day drainage system.

The drainage system prior to the first ice invasion, or in late Tertiary time, is known as the Teays System. During this time period, water flowed to the northwest and left the current boundaries of Coshocton County at its northwest corner. As ice advanced from the northwest, it acted as a dam to this drainage system. The valleys in Coshocton County, and southeastern Ohio in general, became large stagnant lakes rather than flowing rivers. Waterways of Teays drainage systems, including minor tributaries, have thick deposits of lacustrine silts. In addition, deposits lining many stream valleys are the result of the glacier melting at its terminus and the subsequent meltwater depositing large amounts of sand and gravel along stream valleys.

Agriculture and Industry

Coshocton County has a good blend of agricultural and industrial enterprises. Most of the industries in the county are in the city of Coshocton. They include the manufacturers of paper products, stainless steel products, and water systems equipment. A large, coal-powered electrical generating plant is located in Conesville. Some of the coal used for generating electricity at this complex is mined at many different sites in the county.

Despite having a diverse manufacturing base, the largest single industry in Coshocton County is agriculture. In 1987, there were 940 farms with a total of 175,000 acres of cropland (USDA 1989). The acreage of cropland is decreasing, however, because of the expansion of urban and industrial areas and the removal of natural resources from mines and quarries.

Coshocton County is widely diversified in its agriculture. In 1988, about 32,000 acres of corn was harvested, 1,500 acres of soybeans, 1,700 acres of wheat, and 37,500 acres of hay. Milk production in 1988 yielded 60 million pounds. There were 22,800 cattle and calves, 28,000 hogs, and 8,800 sheep in the county at the end of 1988 (Ohio Agricultural Statistics Service 1988). Recent trends are towards larger farms devoted to the production of grain and cropping more highly erodible land by applying a conservation tillage system.

Transportation Facilities

Coshocton County is served by a good system of roads and highways. Every farm in the county is served by a graded and surfaced road. Most township roads are surfaced with gravel. Main roads and highways are surfaced with bituminous material or concrete.

Federal Route 36 crosses the county from east to west. It connects to Interstate 77 to the east and to Interstate 71 to the west. Many State routes make for easy access to all parts of the county.

Several railroads serve parts of the county. One railroad crosses the county from north to south, and another connects Coshocton with points east and west.

A small airport is located near the city of Coshocton.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landform or with a segment of the landform. By observing the soils in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Miscellaneous areas, such as mine dumps and gravel pits, are identified in areas where the natural occurring soils have been altered by human activities. Miscellaneous areas are identified by aerial photo interpretation. Soil scientists make field observations to confirm photo interpretations and adjust boundary lines to show recent changes in the extent of miscellaneous areas.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Survey Procedures

The general procedures followed in making this survey are described in the “National Soil Survey Handbook” (USDA 1996) of the Natural Resources Conservation Service and in the “Soil Survey Manual” (Soil Survey Division Staff 1993). The soil maps made for conservation planning on individual farms prior to the start of the project soil survey and the “Geology of Coshocton County” (Lamborn 1954) were among the references used.

Before the actual fieldwork began, preliminary boundaries of slopes and landforms were plotted stereoscopically on aerial photographs that were taken in 1982 at a scale of 1:38,000 and enlarged to a scale of 1:15,840. U.S. Geological Survey topographic maps, at a scale of 1:24,000, were used to relate land and image features.

A reconnaissance was made by vehicle before the soil scientists traversed the surface on foot, examining the soils. In some areas, such as in the Watertown-Glenford-Fitchville association where the soil pattern is very complex, traverses were as close as 100 yards (Miller, McCormack, and Talbot 1979). In other areas, such as in the Glenford-Tioga-Orrville association where the soil pattern is relatively simple, traverses were about an eighth of a mile apart.

As they traversed the surface, the soil scientists divided the landscape into segments based on the landform and position of the soils on the landform. For example, a hillside would be separated from a swale, or a gently sloping ridgetop would be separated from a very steep side slope. In most areas soil examinations along the traverses were made at points 50 to 100 yards apart, depending upon the landscape and soil pattern.

Observations of such items as landforms, blown-down trees, vegetation, roadbanks, and animal burrows were made continuously without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations, and photo interpretation. With the aid of a hand auger, soil sampling tube, or spade, the soil material was examined to a depth of about 4 feet or to bedrock if the bedrock was at a depth of less than 4 feet. Deeper soils were examined to a depth of 6 feet or more with the aid of a truck-mounted, hydraulic soil coring rig. The pedons described as typical were observed and studied in pits that were dug with shovels.

At the beginning of the survey, sample blocks were selected to represent the major landscapes in the county. These areas were mapped at a rate roughly half of that used in the remainder of the county. Extensive notes were taken on the composition of map units in these preliminary study areas. These preliminary notes were modified as mapping progressed, and a final assessment of the composition of the individual map units was made. Transects were made to determine the composition of soil complexes, especially the Coshocton-Westmoreland complexes.

Samples for chemical and physical analyses and for engineering properties were taken from representative sites of several of the soils in the survey area. The chemical and physical analyses were made by the Soil Characterization Laboratory, Department of Agronomy, The Ohio State University, Columbus, Ohio. The results of the analyses are stored in a computerized data file at the laboratory. The analyses for engineering properties were made by the Ohio Department of Transportation, Division of Highways, Bureau of Testing, Soils and Foundation Section, Columbus, Ohio. The laboratory procedures can be obtained by request from these two laboratories. The results of laboratory analyses can be obtained from the Department of Agronomy, The Ohio State University, Columbus, Ohio; the Ohio Department of Natural Resources, Division of Soil and Water Conservation, Columbus, Ohio; and the Natural Resources Conservation Service, State Office, Columbus, Ohio.

Soil mapping was recorded on mylars of film positives of the 1982 photobase maps. Surface drainage was mapped in the field. Cultural features were recorded from observations of the maps and the landscape.

General Soil Map Units

The general soil map in this publication shows the soil associations in this survey area. Each association has a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, an association consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Nearly level to very steep soils formed in mine spoil and residuum

1. Bethesda-Coshocton-Westmoreland association

Nearly level to very steep

Setting

Landform: Hills
Slope range: 0 to 70 percent

Composition

Percent of survey area: 22 percent
Extent of components in the association (fig. 2):
Bethesda soils—45 percent
Coshocton soils—20 percent
Westmoreland soils—15 percent
Minor soils—20 percent

Soil Properties and Qualities

Bethesda

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Summits, backslopes, and footslopes
Parent material: Mine spoil
Surface texture: Loam and channery loam
Slope: Nearly level to very steep

Coshocton

Depth class: Deep and very deep
Drainage class: Moderately well drained
Position on the landform: Summits, shoulders, backslopes, and footslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Gently sloping to steep

Westmoreland

Depth class: Deep and very deep
Drainage class: Well drained
Position on the landform: Summits, shoulders, and backslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Sloping to steep

Minor Soils

- Gilpin
- Hazleton
- Orrville
- Fairpoint

Use and Management

Major uses: Land idled by mining activities, pasture, woodland, cropland
Management concerns: Slope, erosion
Management measures: Water bars on haul roads and skid trails, grass cover in disturbed areas

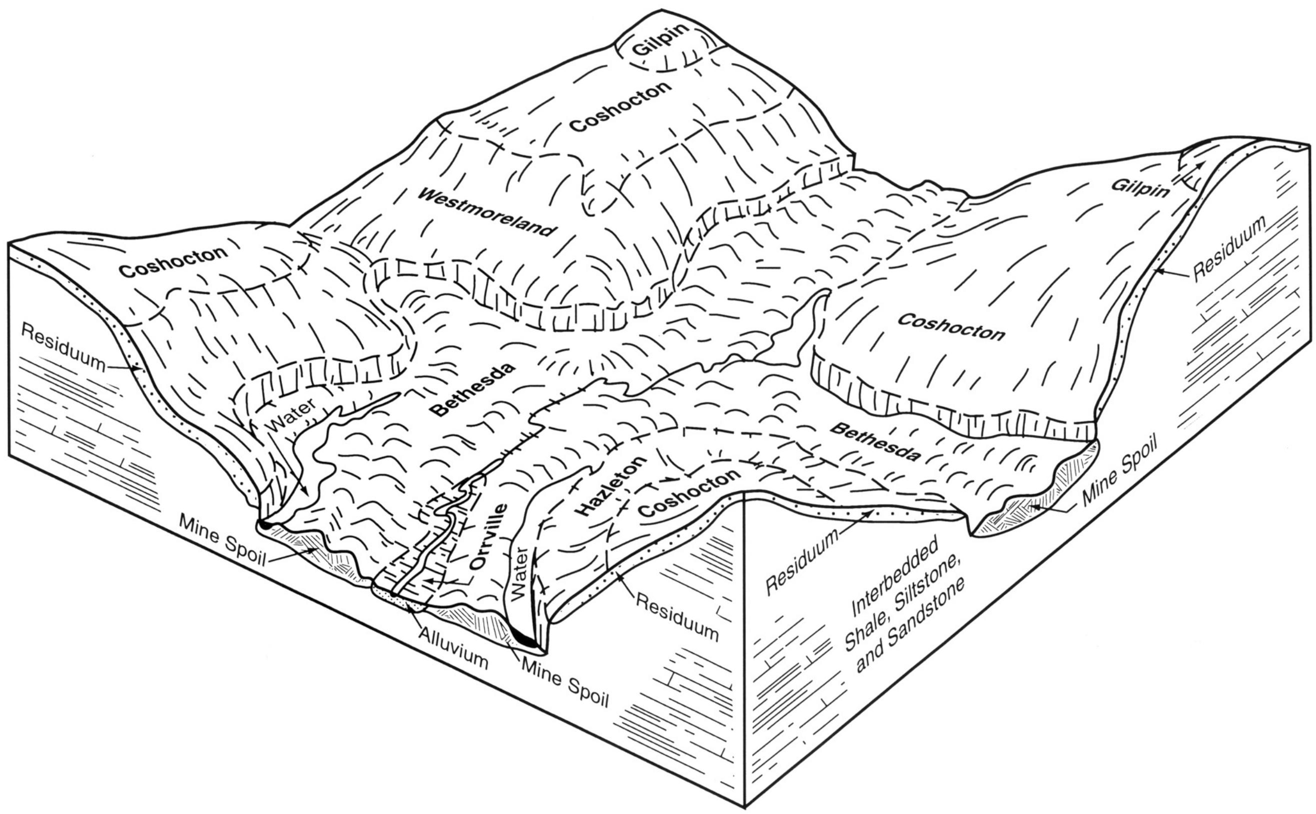

Figure 2.—Typical pattern of soils and parent material in the Bethesda-Coshocton-Westmoreland association.

2. Coshocton-Westmoreland-Rigley association

Gently sloping to steep

Setting

Landform: Hills
Slope range: 2 to 35 percent

Composition

Percent of survey area: 30 percent
Extent of components in the association (fig. 3):
Coshocton soils—50 percent
Westmoreland soils—15 percent
Rigley soils—15 percent
Minor soils—20 percent

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep
Drainage class: Moderately well drained
Position on the landform: Summits, shoulders, backslopes, and footslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Gently sloping to steep

Westmoreland

Depth class: Deep and very deep
Drainage class: Well drained
Position on the landform: Summits, shoulders, and backslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Sloping to steep

Rigley

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Summits, shoulders, backslopes, and footslopes
Parent material: Residuum
Surface texture: Sandy loam
Slope: Sloping to steep

Minor Soils

- Bethesda
- Hazleton

- Orrville
- Glenford

Use and Management

Major uses: Pasture, cropland, woodland
Management concerns: Slope, erosion
Management measures: Contour stripcropping, conservation tillage, water bars on haul roads and skid trails

3. Coshocton-Brownsville-Westmoreland association

Gently sloping to very steep

Setting

Landform: Hills
Slope range: 2 to 70 percent

Composition

Percent of survey area: 30 percent
Extent of components in the association (fig. 4):
Coshocton soils—25 percent
Brownsville soils—25 percent
Westmoreland soils—15 percent
Minor soils—35 percent

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep
Drainage class: Moderately well drained
Position on the landform: Summits, shoulders, backslopes, and footslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Gently sloping to steep

Brownsville

Depth class: Deep and very deep
Drainage class: Well drained
Position on the landform: Backslopes

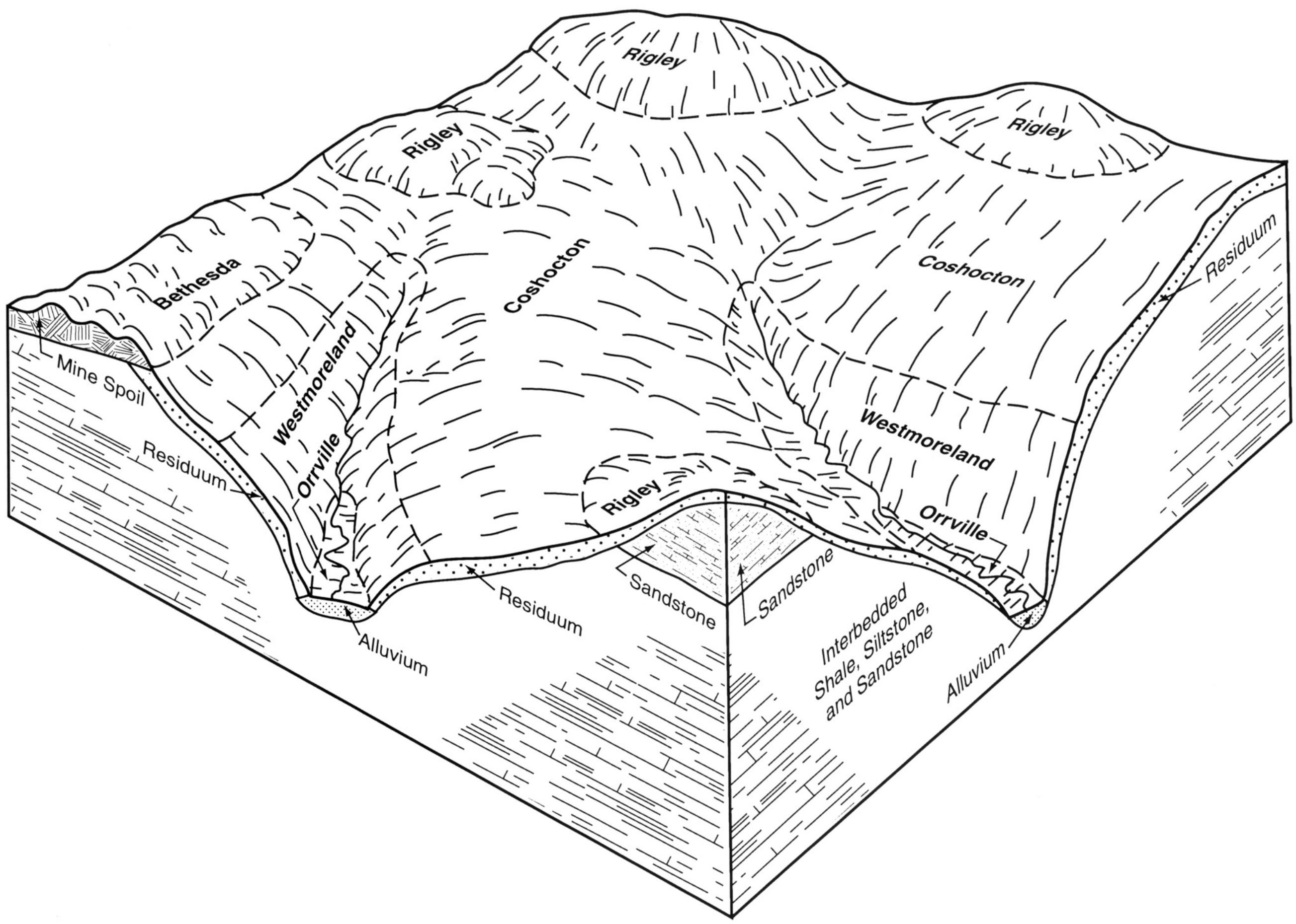

Figure 3.—Typical pattern of soils and parent material in the Coshocton-Westmoreland-Rigley association.

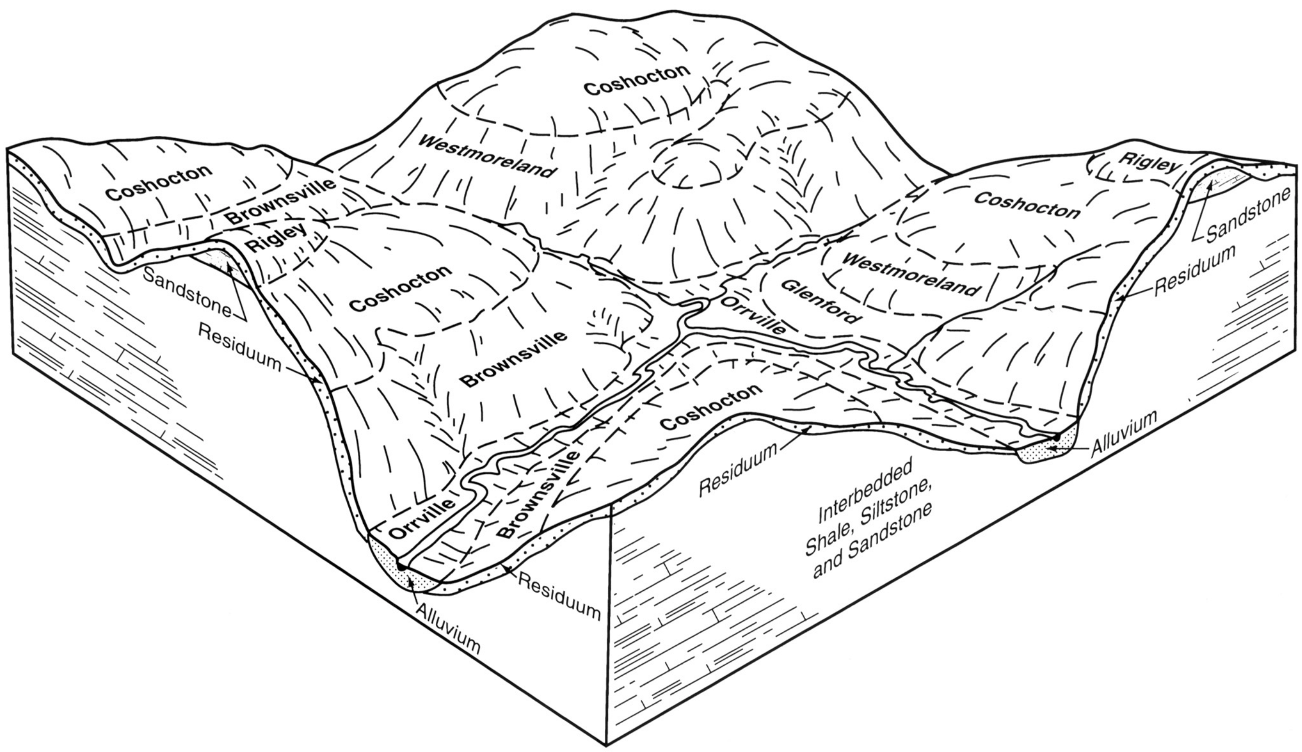

Figure 4.—Typical pattern of soils and parent material in the Coshocton-Brownsville-Westmoreland association.

Parent material: Residuum
Surface texture: Channery silt loam
Slope: Moderately steep to very steep

Westmoreland

Depth class: Deep and very deep
Drainage class: Well drained
Position on the landform: Summits, shoulders, and backslopes
Parent material: Residuum
Surface texture: Silt loam
Slope: Sloping to steep

Minor Soils

- Rigley
- Hazleton
- Glenford
- Orrville

Use and Management

Major uses: Woodland, pasture, cropland
Management concerns: Slope, erosion
Management measures: Conservation tillage, contour stripcropping, water bars on haul roads and skid trails, grass cover in disturbed areas

Gently sloping and sloping soils formed mostly in glacial till

4. Titusville-Homewood-Loudon association

Gently sloping and sloping

Setting

Landform: Glaciated hills
Slope range: 2 to 15 percent

Composition

Percent of survey area: 3 percent
Extent of components in the association:
Titusville soils—25 percent
Homewood soils—20 percent
Loudon soils—20 percent
Minor soils—35 percent

Soil Properties and Qualities

Titusville

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Summits and shoulders

Parent material: Glacial till
Surface texture: Silt loam
Slope: Gently sloping and sloping

Homewood

Depth class: Very deep
Drainage class: Well drained and moderately well drained
Position on the landform: Summits and shoulders
Parent material: Glacial till
Surface texture: Silt loam
Slope: Gently sloping and sloping

Loudon

Depth class: Deep and very deep
Drainage class: Moderately well drained
Position on the landform: Summits and shoulders
Parent material: Thin loess over glacial till that is underlain by residuum
Surface texture: Silt loam
Slope: Gently sloping and sloping

Minor Soils

- Coshocton
- Orrville
- Glenford
- Fitchville

Use and Management

Major uses: Cropland
Management concerns: Erosion
Management measures: Contour stripcropping, cover crops, conservation tillage

Nearly level to very steep soils formed in alluvium, lacustrine sediments, and glacial outwash

5. Tioga-Chili-Watertown association

Nearly level to very steep

Setting

Landform: Flood plains and stream terraces
Slope range: 0 to 70 percent

Composition

Percent of survey area: 9 percent
Extent of components in the association:
Tioga soils—26 percent
Chili soils—25 percent
Watertown soils—10 percent
Minor soils—39 percent

Soil Properties and Qualities

Tioga

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Steps on flood plains
Parent material: Alluvium
Surface texture: Fine sandy loam
Slope: Nearly level

Chili

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Terrace treads and risers
Parent material: Glacial outwash
Surface texture: Loam
Slope: Nearly level to steep

Watertown

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Terrace treads and risers
Parent material: Outwash
Surface texture: Sandy loam
Slope: Nearly level to very steep

Minor Soils

- Wheeling
- Glenford
- Huntington
- Nolin

Use and Management

Major uses: Row crops, building sites
Management concerns: Droughtiness, ground-water pollution
Management measures: Early planting, cover crops

6. Watertown-Glenford-Fitchville association

Nearly level to very steep

Setting

Landform: Stream terraces
Slope range: 0 to 70 percent

Composition

Percent of survey area: 3 percent
Extent of components in the association:
Watertown soils—25 percent
Glenford soils—20 percent
Fitchville soils—15 percent
Minor soils—40 percent

Soil Properties and Qualities

Watertown

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Terrace treads and risers
Parent material: Outwash
Surface texture: Sandy loam
Slope: Nearly level to very steep

Glenford

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Terrace treads, risers, and drainageways
Parent material: Lacustrine sediments
Surface texture: Silt loam
Slope: Nearly level to sloping

Fitchville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Terrace treads
Parent material: Lacustrine sediments
Surface texture: Silt loam
Slope: Nearly level and gently sloping

Minor Soils

- Orrville
- Melvin
- Mentor

Use and Management

Major uses: Cropland
Management concerns: Seasonal high water table, droughtiness
Management measures: Surface and subsurface drainage systems, early planting, cover crops

7. Glenford-Tioga-Orrville association

Nearly level to sloping

Setting

Landform: Flood plains and stream terraces
Slope range: 0 to 15 percent

Composition

Percent of survey area: 2 percent
Extent of components in the association:
Glenford soils—20 percent
Tioga soils—20 percent
Orrville soils—15 percent
Minor soils—45 percent

Soil Properties and Qualities

Glenford

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Terrace treads, risers, and drainageways
Parent material: Lacustrine sediments
Surface texture: Silt loam
Slope: Nearly level to sloping

Tioga

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Steps on flood plains
Parent material: Alluvium
Surface texture: Fine sandy loam
Slope: Nearly level

Orrville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Steps on flood plains
Parent material: Alluvium
Surface texture: Silt loam
Slope: Nearly level

Minor Soils

- Fitchville
- Mentor
- Lobdell
- Melvin
- Newark

Use and Management

Major uses: Cropland, pasture
Management concerns: Flooding, seasonal high water table
Management measures: Drainage system, delayed planting after spring flooding

8. Melvin-Newark association

Nearly level

Setting

Landform: Flood plains
Slope range: 0 to 2 percent

Composition

Percent of survey area: 1 percent
Extent of components in the association:
Melvin soils—20 percent
Newark soils—15 percent
Minor soils—65 percent

Soil Properties and Qualities

Melvin

Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Steps on flood plains and depressions
Parent material: Alluvium
Surface texture: Silt loam
Slope: Nearly level

Newark

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Steps on flood plains
Parent material: Alluvium
Surface texture: Silt loam
Slope: Nearly level

Minor Soils

- Lobdell
- Tioga
- Zipp
- Newark
- Richland

Use and Management

Major uses: Cropland, pasture
Management concerns: Flooding, ponding, seasonal high water table
Management measures: Delayed planting after spring flooding, tile drainage systems

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Coshocton silt loam, 15 to 25 percent slopes, is a phase of the Coshocton series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Coshocton-Rigley complex, 25 to 35 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The map unit Dumps, mine, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AaB—Aaron silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 16 inches—dark yellowish brown, firm silty clay loam
16 to 43 inches—yellowish brown, mottled, firm silty clay and clay
Substratum:
43 to 53 inches—light brownish gray, mottled, firm clay
Bedrock:
53 to 58 inches—interbedded shale

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Shale residuum
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: High
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8.5 inches)

Composition

Aaron soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have less clay in the subsoil than the Aaron soil

Contrasting components:
- Germano soils in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

AaC2—Aaron silt loam, 6 to 15 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 10 to 50 acres
Note: Seeps and springs; partial loss of surface layer

Typical Profile

Surface layer:
0 to 5 inches—brown, friable silt loam mixed with yellowish brown subsoil material
Subsoil:
5 to 8 inches—yellowish brown, firm silty clay loam
8 to 13 inches—yellowish brown, mottled, firm silty clay
13 to 45 inches—yellowish brown, mottled, firm clay
Substratum:
45 to 53 inches—light brownish gray, mottled, firm clay
Bedrock:
53 to 58 inches—light olive brown interbedded shale

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Shale residuum
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: High
Potential for frost action: High

Available water capacity: Moderate (generally 8.4 inches)

Composition

Aaron soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have less clay in the subsoil than the Aaron soil
- Soils that are better drained than the Aaron soil

Contrasting components:
- Germano soils in the more sloping areas
- Severely eroded soils in the more sloping areas
- Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

AfB—Alford silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown, friable silt loam
Subsoil:
10 to 62 inches—yellowish brown, friable silt loam
Substratum:
62 to 80 inches—yellowish brown, friable silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Loess
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 10.9 inches)
Cation-exchange capacity: 5 to 18 centimoles per kilogram

Composition

Alford soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock

Contrasting components:
- Rigley soils
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

AfC2—Alford silt loam, 6 to 15 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 40 acres
Note: Partial loss of surface layer

Typical Profile

Surface layer:
0 to 7 inches—dark grayish brown, friable silt loam mixed with yellowish brown subsoil material
Subsoil:
7 to 65 inches—dark yellowish brown, friable silt loam
Substratum:
65 to 80 inches—dark yellowish brown, friable silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained

Permeability: Moderate
Dominant parent material: Loess
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 10.7 inches)
Cation-exchange capacity: 5 to 18 centimoles per kilogram

Composition

Alford soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock

Contrasting components:
- Moderately well drained soils in concave areas
- Westmoreland soils on shoulders
- Rigley soils on shoulders

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BgB—Bethesda loam, 0 to 8 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 0 to 8 percent
Size of areas: 20 to 100 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 8 inches—yellowish brown, friable loam
Substratum:
8 to 80 inches—variegated yellowish brown, brown, and gray, firm very channery loam and very channery clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: Resoiled surface layer; high content of rock fragments

Composition

Bethesda soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil
- Soils that have a thicker surface layer than that of the Bethesda soil

Contrasting components:
- Ultra acid soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BgD—Bethesda loam, 8 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, backslopes
Slope range: 8 to 25 percent
Size of areas: 10 to 300 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 8 inches—yellowish brown, friable loam
Substratum:
8 to 80 inches—variegated gray, brown, and yellowish brown, firm very channery clay loam and very channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: Resoiled surface layer; high content of rock fragments

Composition

Bethesda soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil
- Soils that have a thicker surface layer than that of the Bethesda soil

Contrasting components:
- Ultra acid soils
- Unreclaimed soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BgE—Bethesda loam, 25 to 40 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 40 percent
Size of areas: 20 to 200 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 6 inches—brown and yellowish brown, friable loam
Substratum:
6 to 80 inches—variegated gray, brown, and yellowish brown, firm very channery clay loam and very channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: Resoiled surface layer; high content of rock fragments

Composition

Bethesda soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil

Contrasting components:
- Ultra acid soils
- Unreclaimed soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BhB—Bethesda channery loam, 0 to 8 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 0 to 8 percent
Size of areas: 5 to 100 acres
Note: Ungraded surface; strip mine

Typical Profile

Surface layer:
0 to 2 inches—brown, friable channery loam
Substratum:
2 to 80 inches—variegated gray, yellowish brown, and brown, firm very channery loam and very channery clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Low or very low (0 or 1 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.4 inches)
Cation-exchange capacity: 7 to 16 centimoles per kilogram
Other features: High content of rock fragments

Composition

Bethesda soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil

Contrasting components:
- Ultra acid soils
- Soils on short, steep slopes
- Soils that are subject to ponding

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BhD—Bethesda channery loam, 8 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, backslopes, footslopes
Slope range: 8 to 25 percent
Size of areas: 5 to 100 acres
Note: Ungraded surface; strip mine

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown, friable channery loam
Substratum:
4 to 80 inches—variegated dark gray, grayish brown, and yellowish brown very channery loam and very channery clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Low or very low (0.1 to 1.0 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.4 inches)
Cation-exchange capacity: 7 to 16 centimoles per kilogram
Other features: High content of rock fragments

Composition

Bethesda soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil

Contrasting components:
- Ultra acid soils
- Soils on short, steep slopes
- Soils that are subject to ponding
- Westmoreland soils near the margins of the unit
- Coshocton soils near the margins of the unit

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BhF—Bethesda channery loam, 25 to 70 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 70 percent
Size of areas: 5 to 300 acres
Note: Ungraded surface; strip mine

Typical Profile

Surface layer:
0 to 3 inches—brown, friable channery loam
Substratum:
3 to 80 inches—yellowish brown, friable very channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Low or very low (0.1 to 1.0 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.4 inches)
Cation-exchange capacity: 7 to 16 centimoles per kilogram
Other features: High content of rock fragments

Composition

Bethesda soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are less acid than the Bethesda soil
- Soils that have more clay in the subsoil than the Bethesda soil
- Soils that have variegated colors in their substratum

Contrasting components:
- Ultra acid soils
- Highwalls
- Soils that are subject to ponding
- Westmoreland soils near the margins of the unit
- Coshocton soils near the margins of the unit

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BrD—Brownsville channery silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown, friable channery silt loam
Subsoil:
6 to 12 inches—brown, friable channery silt loam
12 to 35 inches—yellowish brown, friable very channery silt loam
Substratum:
35 to 60 inches—yellowish brown, friable very flaggy silt loam
Bedrock:
60 to 62 inches—fractured siltstone bedrock

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Dominant parent material: Material weathered from siltstone and fine grained sandstone

Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.8 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram
Other features: High content of rock fragments

Composition

Brownsville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that are moderately deep to bedrock
• Soils that have fewer rock fragments in the subsoil than the Brownsville soil
Contrasting components:
• Coshocton soils in less sloping areas
• Soils that have stones on the surface and are at the base of the steeper slopes
• Soils on steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BrE—Brownsville channery silt loam, 25 to 35 percent slopes

Setting

Landform: Hills (fig. 5)
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 5 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown and brown, very friable channery silt loam
Subsoil:
6 to 38 inches—yellowish brown, friable channery and extremely channery silt loam

Figure 5.—A road cut in an area of Brownsville channery silt loam, 25 to 35 percent slopes.

Substratum:
38 to 65 inches—yellowish brown, friable extremely flaggy silt loam
Bedrock:
65 to 70 inches—fractured siltstone bedrock

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Dominant parent material: Material weathered from siltstone and fine grained sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)

Potential for frost action: Moderate
Available water capacity: Low (generally 5.8 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram
Other features: High content of rock fragments

Composition

Brownsville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have fewer rock fragments in the subsoil than the Brownsville soil
- Soils that have more rock fragments on the surface than the Brownsville soil

Contrasting components:
- Coshocton soils in less sloping areas
- Soils that have boulders on the surface and are near the base of slopes
- Soils on steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BrF—Brownsville channery silt loam, 35 to 70 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 35 to 70 percent
Size of areas: 5 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown and brown, friable channery silt loam
Subsoil:
6 to 30 inches—yellowish brown, very friable channery silt loam
Substratum:
30 to 60 inches—yellowish brown, friable extremely flaggy silt loam
Bedrock:
60 to 65 inches—fractured siltstone bedrock

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Dominant parent material: Material weathered from siltstone and fine grained sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.8 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram
Other features: High content of rock fragments

Composition

Brownsville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have fewer rock fragments in the subsoil than the Brownsville soil
- Soils that have more clay in the subsoil than the Brownsville soil

Contrasting components:
- Coshocton soils in less sloping areas
- Richland soils near the base of slopes
- Soils that have boulders on the surface and are near the base of slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BtF—Brownsville-Rock outcrop complex, 35 to 70 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 35 to 70 percent
Size of areas: 30 to 100 acres
Note: Vertical rock exposures of 50 feet or less

Typical Profile

Brownsville

Surface layer:
0 to 6 inches—very dark grayish brown and brown, friable channery silt loam
Subsoil:
6 to 30 inches—yellowish brown, very friable channery silt loam
Substratum:
30 to 60 inches—yellowish brown, friable extremely flaggy silt loam
Bedrock:
60 to 65 inches—fractured siltstone bedrock

Soil Properties and Qualities

Brownsville

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Dominant parent material: Material weathered from siltstone and fine grained sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.8 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram
Other features: High content of rock fragments

Composition

Brownsville soil and similar components: 40 percent
Rock outcrop: 40 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils on steeper slopes

Contrasting components:
- Soils that are shallow to bedrock and are near small rock outcrops or on small benches

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CdA—Caneadea silt loam, 0 to 2 percent slopes

Setting

Landform: Lake plains
Position on the landform: Flats
Slope range: 0 to 2 percent
Size of areas: 5 to 50 acres

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown, friable silt loam
Subsoil:
8 to 16 inches—yellowish brown, mottled, firm silty clay
16 to 44 inches—grayish brown, mottled, firm silty clay
Substratum:
44 to 80 inches—dark grayish brown, mottled, firm silty clay

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Very slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 7.9 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram

Composition

Caneadea soil and similar components: 80 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Somewhat poorly drained soils
- Soils that have less clay in the subsoil than the Caneadea soil

Contrasting components:
- Soils that have slopes of more than 2 percent and are along drainageways
- Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CfA—Chili loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable loam
Subsoil:
8 to 30 inches—strong brown, firm gravelly and very gravelly clay loam
30 to 48 inches—brown, firm very gravelly loam
Substratum:
48 to 80 inches—yellowish brown, loose very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram

Composition

Chili soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have a gravelly surface layer
- Soils that have a surface layer of silt loam

Contrasting components:
- Watertown soils in landscape positions similar to those of the Chili soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CfB—Chili loam, 2 to 6 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Treads
Slope range: 2 to 6 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 9 inches—brown, friable loam
Subsoil:
9 to 35 inches—strong brown, firm gravelly loam
35 to 45 inches—strong brown, firm gravelly clay loam
Substratum:
45 to 80 inches—yellowish brown, loose very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum

Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram

Composition

Chili soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have a gravelly surface layer
- Soils that have a surface layer of silt loam

Contrasting components:
- Watertown soils in landscape positions similar to those of the Chili soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

CfC—Chili loam, 6 to 15 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Treads, risers
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 9 inches—brown, friable loam
Subsoil:
9 to 33 inches—yellowish brown, friable gravelly loam
33 to 42 inches—yellowish brown, friable gravelly sandy loam
Substratum:
42 to 80 inches—yellowish brown, loose very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram
Other features: Droughtiness

Composition

Chili soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have a gravelly surface layer
- Soils that are moderately eroded

Contrasting components:
- Watertown soils in landscape positions similar to those of the Chili soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

CfD—Chili loam, 15 to 25 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Risers
Slope range: 15 to 25 percent
Size of areas: 10 to 20 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 7 inches—brown, friable loam

Subsoil:
7 to 25 inches—strong brown, friable gravelly loam
25 to 42 inches—strong brown, friable gravelly sandy loam
Substratum:
42 to 80 inches—strong brown, loose gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram
Other features: Droughtiness

Composition

Chili soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have a gravelly surface layer
Contrasting components:
• Watertown soils on the steeper part of slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CfE—Chili loam, 25 to 35 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Risers
Slope range: 25 to 35 percent
Size of areas: 5 to 20 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 5 inches—brown, friable loam
Subsoil:
5 to 24 inches—strong brown, friable gravelly loam
24 to 33 inches—strong brown, friable gravelly sandy loam
Substratum:
33 to 48 inches—strong brown, loose gravelly loamy sand
48 to 80 inches—strong brown, loose gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram
Other features: Droughtiness

Composition

Chili soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have a gravelly surface layer
• Soils that have more gravel in the subsoil than the Chili soil
Contrasting components:
• Soils that have a thinner subsoil than that of the Chili soil and are in similar landscape positions
• Soils that contain less clay than the Chili soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CgA—Chili-Urban land complex, 0 to 2 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 100 to 300 acres

Typical Profile

Chili

Surface layer:
0 to 8 inches—brown, friable loam
Subsoil:
8 to 30 inches—strong brown, firm gravelly and very gravelly clay loam
30 to 48 inches—brown, friable very gravelly loam
Substratum:
48 to 80 inches—yellowish brown, loose very gravelly loamy sand

Urban land

The Urban land is covered by streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

Soil Properties and Qualities

Chili

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram
Other features: Disturbed areas

Composition

Chili soil and similar components: 50 percent
Urban land: 30 percent
Inclusions: 20 percent

Inclusions

Similar components:
• Gently sloping soils

Contrasting components:
• Areas of disturbed soils
• Watertown soils in landscape positions similar to those of the Chili soil
• Coshocton soils near the base of slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

• “Woodland” section
• “Crops and Pasture” section
• “Recreation” section
• “Wildlife Habitat” section
• “Engineering” and “Soil Properties” sections

CgB—Chili-Urban land complex, 2 to 6 percent slopes

Setting

Landform: Outwash terraces
Position on the landform: Treads
Slope range: 2 to 6 percent
Size of areas: 50 to 200 acres

Typical Profile

Chili

Surface layer:
0 to 9 inches—brown, friable loam
Subsoil:
9 to 35 inches—strong brown, friable loam
35 to 45 inches—strong brown, friable clay loam
Substratum:
45 to 85 inches—yellowish brown, loose very gravelly loamy sand

Urban land

The Urban land is covered by streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

Soil Properties and Qualities

Chili

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland

Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.3 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram
Other features: Disturbed areas

Composition

Chili soil and similar components: 50 percent
Urban land: 30 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Nearly level soils

Contrasting components:
- Areas of disturbed soils
- Watertown soils in landscape positions similar to those of the Chili soil
- Coshocton soils near the base of slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ChA—Cidermill silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 10 to 100 acres

Typical Profile

Surface layer:
0 to 12 inches—brown, friable silt loam
Subsoil:
12 to 30 inches—yellowish brown, friable and firm silt loam
30 to 43 inches—yellowish brown, firm very fine sandy loam
Substratum:
43 to 80 inches—yellowish brown, loose stratified gravelly and very gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate in the subsoil and rapid in the substratum
Dominant parent material: Silty material over outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8.4 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Cidermill soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more gravel in the subsoil than the Cidermill soil
- Soils that have more silt in the subsoil than the Cidermill soil

Contrasting components:
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ChB—Cidermill silt loam, 2 to 6 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 2 to 6 percent

Size of areas: 10 to 50 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 32 inches—yellowish brown, friable and firm silt loam
32 to 50 inches—yellowish brown, friable loam and gravelly sandy loam
Substratum:
50 to 80 inches—yellowish brown, loose stratified gravelly and very gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate in the subsoil and rapid in the substratum
Dominant parent material: Silty material over outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8.4 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Cidermill soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more gravel in the subsoil than the Cidermill soil
• Soils that have more silt in the subsoil than the Cidermill soil
Contrasting components:
• Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CkC—Clarksburg silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 16 inches—yellowish brown, friable silt loam
16 to 22 inches—yellowish brown, firm loam
22 to 31 inches—yellowish brown, mottled, firm loam and channery clay loam
31 to 43 inches—light yellowish brown, mottled, very firm channery clay loam
Substratum:
43 to 80 inches—yellowish brown, mottled, firm channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Slow or moderately slow
Dominant parent material: Colluvium
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.6 inches)
Cation-exchange capacity: 12 to 20 centimoles per kilogram
Other features: Dense, brittle layer in the subsoil

Composition

Clarksburg soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Contrasting components:
• Somewhat poorly drained soils in concave areas
• Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CkD—Clarksburg silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes
Slope range: 15 to 25 percent
Size of areas: 20 to 50 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 5 inches—brown, very friable silt loam
Subsoil:
5 to 13 inches—dark yellowish brown and yellowish brown, very friable and friable silt loam
13 to 24 inches—dark yellowish brown, firm channery loam
24 to 32 inches—yellowish brown, mottled, firm channery loam
32 to 65 inches—yellowish brown, mottled, very firm channery clay loam
Substratum:
65 to 80 inches—yellowish brown, mottled, firm channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Slow or moderately slow
Dominant parent material: Colluvium
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.6 inches)
Cation-exchange capacity: 12 to 20 centimoles per kilogram
Other features: Dense, brittle layer in the subsoil

Composition

Clarksburg soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that do not have a fragipan

Contrasting components:
- Somewhat poorly drained soils in concave areas
- Steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CoB—Coshocton silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 5 to 20 acres
Note: Seeps and springs; partial loss of surface layer

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsurface layer:
7 to 10 inches—yellowish brown, friable silt loam
Subsoil:
10 to 15 inches—yellowish brown, firm silt loam
15 to 37 inches—yellowish brown, mottled, firm channery silty clay loam
37 to 50 inches—yellowish brown, mottled, very firm channery silty clay loam
Bedrock:
50 to 55 inches—interbedded sandstone and shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part

Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are better drained than the Coshocton soil

Contrasting components:
- Gilpin soils in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CoC2—Coshocton silt loam, 6 to 15 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Summits, shoulders, footslopes
Slope range: 6 to 15 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam mixed with yellowish brown silty clay loam
Subsoil:
7 to 14 inches—yellowish brown, friable silt loam and silty clay loam
14 to 27 inches—yellowish brown, mottled, firm silty clay loam and channery silty clay loam
27 to 46 inches—yellowish brown, mottled, very firm channery loam
Substratum:
46 to 58 inches—yellowish brown, mottled, firm channery silty clay loam
Bedrock:
58 to 60 inches—fractured shale with thin beds of sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have more clay in the subsoil than the Coshocton soil

Contrasting components:
- Gilpin soils in the more sloping areas
- Poorly drained soils
- Soils that have stones on the surface and are at the base of the steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section

- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CoD—Coshocton silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 15 to 25 percent
Size of areas: 5 to 200 acres

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown, friable silt loam
Subsoil:
6 to 12 inches—yellowish brown, friable silt loam
12 to 30 inches—yellowish brown, mottled, firm silty clay loam
30 to 45 inches—yellowish brown, mottled, firm silty clay
Substratum:
45 to 58 inches—yellowish brown, mottled, firm channery silty clay loam
Bedrock:
58 to 60 inches—fractured shale with thin beds of sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have more clay in the subsoil than the Coshocton soil
- Soils that are better drained than the Coshocton soil

Contrasting components:
- Rigley soils in the more sloping areas
- Westmoreland soils in the more sloping areas
- Somewhat poorly drained soils in concave areas
- Poorly drained soils
- Soils that have stones on the surface and are at the base of the steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CoE—Coshocton silt loam, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown, friable silt loam
Subsurface layer:
6 to 12 inches—light yellowish brown, friable silt loam
Subsoil:
12 to 21 inches—yellowish brown, friable silt loam
21 to 35 inches—yellowish brown, mottled, firm silty clay loam
Substratum:
35 to 48 inches—yellowish brown, mottled, firm silty clay
Bedrock:
48 to 50 inches—fractured shale interbedded with sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained

Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have more clay in the subsoil than the Coshocton soil
- Soils that are better drained than the Coshocton soil

Contrasting components:
- Rigley soils in the more sloping areas
- Westmoreland soils in the more sloping areas
- Somewhat poorly drained soils in concave areas
- Very steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CpC—Coshocton silt loam, 6 to 15 percent slopes, very stony

Setting

Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 6 to 15 percent
Size of areas: 5 to 80 acres
Note: Stones cover as much as 3 percent of the surface

Typical Profile

Surface layer:
0 to 5 inches—brown, friable silt loam
Subsoil:
5 to 13 inches—yellowish brown, friable silt loam
13 to 35 inches—yellowish brown, mottled, firm channery loam
35 to 46 inches—yellowish brown, mottled, very firm channery loam
Substratum:
46 to 80 inches—yellowish brown, mottled, firm channery silty clay loam

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.8 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have fewer stones on the surface than the Coshocton soil
- Soils that are better drained than the Coshocton soil
- Soils that have more clay in the subsoil than the Coshocton soil

Contrasting components:
- Very bouldery soils
- Somewhat poorly drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CpD—Coshocton silt loam, 15 to 25 percent slopes, very stony

Setting

Landform: Hills
Position on the landform: Footslopes
Slope range: 15 to 25 percent
Size of areas: 10 to 200 acres
Note: Stones cover as much as 3 percent of the surface

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown, friable silt loam
Subsoil:
6 to 14 inches—yellowish brown, firm silt loam
14 to 38 inches—yellowish brown, mottled, firm silty clay loam
Substratum:
38 to 80 inches—olive brown, mottled, firm channery silty clay loam

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.8 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Coshocton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have fewer stones on the surface than the Coshocton soil
- Soils that are better drained than the Coshocton soil
- Soils that have more clay in the subsoil than the Coshocton soil

Contrasting components:
- Hazleton soils in the more sloping areas
- Somewhat poorly drained soils in concave areas
- Very bouldery soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CrD—Coshocton-Rigley complex, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 4 to 100 acres
Note: Seeps and springs

Typical Profile

Coshocton

Surface layer:
0 to 6 inches—dark yellowish brown, friable silt loam
Subsoil:
6 to 12 inches—yellowish brown, friable silt loam
12 to 30 inches—yellowish brown, mottled, firm silty clay loam
30 to 45 inches—yellowish brown, mottled, firm silty clay
Substratum:
45 to 58 inches—yellowish brown, mottled channery silty clay loam
Bedrock:
58 to 60 inches—interbedded sandstone and shale

Rigley

Surface layer:
0 to 7 inches—brown, friable sandy loam
Subsurface layer:
7 to 10 inches—brown, friable fine sandy loam
Subsoil:
10 to 22 inches—yellowish brown, friable sandy loam
22 to 44 inches—strong brown, friable channery loam and sandy loam
44 to 57 inches—light yellowish brown, friable channery sandy loam
Substratum:
57 to 70 inches—light yellowish brown, friable very channery loamy sand
Bedrock:
70 to 72 inches—light yellowish brown, weathered sandstone

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Rigley

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Available water capacity: Moderate (generally 7.2 inches)

Composition

Coshocton soil and similar components: 45 percent
Rigley soil and similar components: 35 percent
Inclusions: 20 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Coshocton soil
• Soils that have more fragments in the subsoil than the Rigley soil
• Soils that have less sand in the subsoil than the Rigley soil
Contrasting components:
• Very stony soils in the less sloping areas
• Somewhat poorly drained soils in concave areas
• Very bouldery soils in the more sloping areas
• Very steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CrE—Coshocton-Rigley complex, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 20 to 200 acres
Note: Seeps and springs

Typical Profile

Coshocton

Surface layer:
0 to 6 inches—dark grayish brown, friable silt loam
Subsurface layer:
6 to 12 inches—light yellowish brown, friable silt loam
Subsoil:
12 to 21 inches—yellowish brown, friable silt loam
21 to 35 inches—yellowish brown, mottled, firm silty clay loam

Substratum:
35 to 48 inches—yellowish brown, mottled, firm silty clay
Bedrock:
48 to 60 inches—fractured shale interbedded with sandstone

Rigley

Surface layer:
0 to 5 inches—very dark grayish brown, friable sandy loam
Subsurface layer:
5 to 10 inches—light yellowish brown, friable channery sandy loam
Subsoil:
10 to 38 inches—yellowish brown and light yellowish brown, friable sandy loam
38 to 52 inches—light yellowish brown, friable channery sandy loam
Substratum:
52 to 62 inches—light yellowish brown, friable very channery sandy loam
Bedrock:
62 to 67 inches—fractured sandstone bedrock

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Rigley

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Available water capacity: Moderate (generally 7.2 inches)

Composition

Coshocton soil and similar components: 45 percent
Rigley soil and similar components: 35 percent
Inclusions: 20 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Coshocton soil
• Soils that have more fragments in the subsoil than the Rigley soil
• Soils that have less sand in the subsoil than the Rigley soil
Contrasting components:
• Somewhat poorly drained soils in concave areas
• Very bouldery soils in the more sloping areas
• Very steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CsD—Coshocton-Westmoreland complex, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 10 to 200 acres
Note: Seeps and springs; less sloping areas

Typical Profile

Coshocton

Surface layer:
0 to 6 inches—dark yellowish brown, friable silt loam
Subsoil:
6 to 12 inches—yellowish brown, friable silt loam
12 to 30 inches—yellowish brown, mottled, firm silty clay loam

30 to 45 inches—yellowish brown, mottled, firm silty clay
Substratum:
45 to 58 inches—yellowish brown, mottled, firm channery silty clay loam
Bedrock:
58 to 60 inches—interbedded sandstone and shale

Westmoreland

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 24 inches—strong brown, friable silt loam
24 to 38 inches—yellowish brown, friable channery loam
Substratum:
38 to 55 inches—yellowish brown, friable channery silty clay loam
Bedrock:
55 to 82 inches—light olive brown, weathered siltstone
82 to 84 inches—hard siltstone

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Westmoreland

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.9 inches)
Cation-exchange capacity: 15 to 25 centimoles per kilogram

Composition

Coshocton soil and similar components: 50 percent
Westmoreland soil and similar components: 30 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Soils that are better drained than the Coshocton soil
- Soils that have more clay in the subsoil than the Coshocton soil
- Eroded soils
- Soils that have more sand in the subsoil than the Westmoreland soil
- Soils that are moderately deep to bedrock

Contrasting components:
- Somewhat poorly drained soils in concave areas
- Poorly drained soils
- Soils that have stones on the surface and are at the base of the steeper slopes
- Steep soils on slope breaks to the uplands

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CsE—Coshocton-Westmoreland complex, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 10 to 300 acres
Note: Seeps and springs

Typical Profile

Coshocton

Surface layer:
0 to 6 inches—dark grayish brown, friable silt loam

Subsurface layer:
6 to 12 inches—light yellowish brown, friable silt loam
Subsoil:
12 to 21 inches—yellowish brown, friable silt loam
21 to 35 inches—yellowish brown, mottled, firm silty clay loam
Substratum:
35 to 48 inches—yellowish brown, mottled silty clay
Bedrock:
48 to 53 inches—fractured shale interbedded with sandstone

Westmoreland

Surface layer:
0 to 5 inches—brown, friable silt loam
Subsoil:
5 to 15 inches—yellowish brown, friable silty clay loam
15 to 39 inches—yellowish brown, friable channery loam
Substratum:
39 to 60 inches—yellowish brown, friable very channery loam
Bedrock:
60 to 65 inches—interbedded sandstone and shale

Soil Properties and Qualities

Coshocton

Depth class: Deep and very deep (40 to 84 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum; moderately slow or slow in the lower part of the solum and in the substratum
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Westmoreland

Depth class: Deep and very deep (40 to 80 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.9 inches)
Cation-exchange capacity: 15 to 25 centimoles per kilogram

Composition

Coshocton soil and similar components: 50 percent
Westmoreland soil and similar components: 30 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Soils that are better drained than the Coshocton soil
- Soils that have more clay in the subsoil than the Coshocton soil
- Soils that have more sand in the subsoil than the Westmoreland soil
- Soils that are moderately deep to bedrock
- Soils that have a seasonal high water table at a depth of 4 to 6 feet

Contrasting components:
- Poorly drained soils
- Soils that have stones on the surface and are in the less sloping areas
- Very steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

DeC—Dekalb channery sandy loam, 6 to 15 percent slopes, stony

Setting

Landform: Hills
Position on the landform: Shoulders, summits
Slope range: 6 to 15 percent
Size of areas: 5 to 25 acres
Note: Stones cover as much as 0.1 percent of the surface

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown, friable channery sandy loam
Subsoil:
5 to 24 inches—yellowish brown, friable channery and very channery sandy loam
Substratum:
24 to 36 inches—yellowish brown, loose extremely channery loamy sand
Bedrock:
36 to 38 inches—fractured sandstone bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or high (2 to 5 percent)
Available water capacity: Low (generally 3.1 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram
Other features: High content of rock fragments

Composition

Dekalb soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have fewer fragments in the subsoil than the Dekalb soil
Contrasting components:
• Shallow soils on the steeper part of slopes
• Nonskeletal soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Ds—Dumps, mine

Composition

Dumps: 100 percent
Inclusions: None

Use and Management

Onsite investigation is needed to determine the limitations affecting any proposed use.

EuA—Euclid silt loam, occasionally flooded

Setting

Landform: Terraces
Position on the landform: Treads
Slope range: 0 to 3 percent
Size of areas: 10 to 50 acres
Note: Occasional flooding

Typical Profile

Surface layer:
0 to 9 inches—dark grayish brown, friable silt loam
Subsoil:
9 to 48 inches—brown and yellowish brown, mottled, friable and firm silty clay loam
Substratum:
48 to 80 inches—light brownish gray, mottled, firm stratified silt loam and silty clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 or 3 percent)
Potential for frost action: High
Available water capacity: High (generally 10.4 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Euclid soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Euclid soil
Contrasting components:
• Glenford soils in the higher landscape positions

• Poorly drained soils
• Soils that have slopes of more than 3 percent

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FaB—Fairpoint loam, 0 to 8 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 0 to 8 percent
Size of areas: 5 to 100 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 10 inches—yellowish brown, friable loam
Substratum:
10 to 80 inches—variegated yellowish brown, gray, and grayish brown very channery silty clay loam and clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: High content of rock fragments

Composition

Fairpoint soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that are more acid than the Fairpoint soil
• Soils that have a thicker surface layer than that of the Fairpoint soil
Contrasting components:
• Soils that have slopes of more than 8 percent
• Soils that have a very channery surface layer

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FaD—Fairpoint loam, 8 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, backslopes
Slope range: 8 to 25 percent
Size of areas: 5 to 300 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown, friable loam
Substratum:
4 to 10 inches—yellowish brown and strong brown, friable loam
10 to 80 inches—gray and olive gray, very firm very channery and extremely channery silty clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)

Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: High content of rock fragments

Composition

Fairpoint soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are more acid than the Fairpoint soil

Contrasting components:
- Soils that have a very channery surface layer
- Soils that have slopes of more than 5 percent

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FaE—Fairpoint loam, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 20 to 200 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown, friable loam
Subsurface layer:
4 to 10 inches—yellowish brown and strong brown, friable loam
Substratum:
10 to 80 inches—gray, olive gray, and grayish brown, firm and very firm very channery and extremely channery silty clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: High content of rock fragments

Composition

Fairpoint soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are more acid than the Fairpoint soil

Contrasting components:
- Unreclaimed soils near the margins of the unit
- Ultra acid soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FeB—Farmerstown loam, 0 to 8 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 0 to 8 percent
Size of areas: 5 to 20 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 4 inches—brown, friable loam
Substratum:
4 to 30 inches—dark yellowish brown, firm loam in the upper part and channery loam in the lower part
30 to 80 inches—variegated dark yellowish brown and olive, very firm channery and very channery clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained
Permeability: Moderately slow or slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: Unstable fill

Composition

Farmerstown soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more rock fragments in the subsoil than the Farmerstown soil
Contrasting components:
• Unreclaimed soils in landscape positions similar to those of the Farmerstown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FeC—Farmerstown loam, 8 to 20 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, backslopes
Slope range: 8 to 20 percent
Size of areas: 10 to 40 acres
Note: Graded surface; reclaimed strip mine

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown, yellowish brown, and light brownish gray, firm loam
Substratum:
6 to 32 inches—multicolored, firm and very firm loam and clay loam
32 to 80 inches—olive and olive gray, very firm channery and very channery silty clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow or slow
Dominant parent material: Mine spoil (reclaimed areas)
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 7 to 15 centimoles per kilogram
Other features: Unstable fill

Composition

Farmerstown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more rock fragments in the subsoil than the Farmerstown soil
Contrasting components:
• Unreclaimed soils in landscape positions similar to those of the Farmerstown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FhA—Fitchville silt loam, 0 to 2 percent slopes

Setting

Landform: Terraces (fig. 6)
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 5 to 80 acres

Typical Profile

Surface layer:
0 to 9 inches—grayish brown, friable silt loam

Figure 6.—Cropland in an area of Fitchville silt loam, 0 to 2 percent slopes.

Subsoil:
9 to 28 inches—brown and yellowish brown, mottled, friable and firm silt loam and silty clay loam
28 to 40 inches—brown, mottled, friable silt loam
Substratum:
40 to 80 inches—yellowish brown, mottled, friable stratified silt loam and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 or 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 10.2 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram

Composition

Fitchville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Fitchville soil
• Soils that have more sand in the substratum than the Fitchville soil
Contrasting components:
• Glenford soils in the higher landscape positions
• Sebring soils
• Euclid soils in the lower landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

FhB—Fitchville silt loam, 2 to 6 percent slopes

Setting

Landform: Lake plains, terraces
Position on the landform: Treads
Slope range: 2 to 6 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 7 inches—grayish brown, friable silt loam
Subsoil:
7 to 25 inches—yellowish brown, mottled, friable and firm silt loam and silty clay loam
25 to 38 inches—yellowish brown, mottled, friable silt loam
Substratum:
38 to 80 inches—yellowish brown, mottled, friable stratified silt loam and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 or 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 10.2 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram

Composition

Fitchville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more clay in the subsoil than the Fitchville soil
- Soils that have more sand in the substratum than the Fitchville soil

Contrasting components:
- Sebring soils
- Glenford soils in the higher landscape positions
- Soils that are subject to flooding and are in the lower landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

GdB—Germano sandy loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable sandy loam
Subsoil:
8 to 16 inches—yellowish brown, friable sandy loam
16 to 24 inches—yellowish brown, friable channery sandy loam
Substratum:
24 to 32 inches—yellowish brown, friable very channery sandy loam
Bedrock:
32 to 37 inches—strong brown, soft sandstone bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None

Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.2 inches)
Cation-exchange capacity: 5 to 10 centimoles per kilogram
Other features: Droughtiness

Composition

Germano soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have less sand in the subsoil than the Germano soil

Contrasting components:
- Aaron soils in the higher landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GdC2—Germano sandy loam, 6 to 15 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Shoulders, summits
Slope range: 6 to 15 percent
Size of areas: 10 to 40 acres
Note: Partial loss of surface layer

Typical Profile

Surface layer:
0 to 10 inches—brown, friable sandy loam with streaks and pockets of yellowish brown subsoil material
Subsoil:
10 to 20 inches—yellowish brown, friable sandy loam
20 to 24 inches—yellowish brown, firm channery sandy loam
Bedrock:
24 to 29 inches—strong brown, soft sandstone bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.2 inches)
Cation-exchange capacity: 5 to 10 centimoles per kilogram
Other features: Droughtiness

Composition

Germano soil and similar components: 80 percent
Inclusions: 20 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Soils that are not eroded

Contrasting components:
- Soils that have stones on the surface and are in the less sloping areas
- Aaron soils in the higher landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GhB—Gilpin silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 2 to 20 acres

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown, friable silt loam
Subsoil:
6 to 11 inches—yellowish brown, friable silt loam
11 to 18 inches—yellowish brown, friable loam

18 to 24 inches—yellowish brown, friable channery loam
Bedrock:
24 to 26 inches—interbedded sandstone and shale

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.2 inches)

Composition

Gilpin soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Soils that are shallow to bedrock

Contrasting components:
- Coshocton soils in landscape positions similar to those of the Gilpin soil
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

GhC—Gilpin silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Shoulders, summits
Slope range: 6 to 15 percent
Size of areas: 5 to 70 acres

Typical Profile

Surface layer:
0 to 5 inches—brown, very friable silt loam
Subsoil:
5 to 9 inches—yellowish brown, very friable silt loam
9 to 23 inches—strong brown, friable silt loam and channery silt loam
23 to 32 inches—dark yellowish brown, friable very channery loam
Bedrock:
32 to 36 inches—yellowish red, soft, fine grained sandstone
36 to 41 inches—hard interbedded sandstone and siltstone

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.2 inches)

Composition

Gilpin soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Soils that are shallow to bedrock
- Soils that have more stones in the surface layer than the Gilpin soil

Contrasting components:
- Severely eroded soils on the steeper part of slopes
- Coshocton soils in landscape positions similar to those of the Gilpin soil
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

GhD—Gilpin silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Shoulders
Slope range: 15 to 25 percent
Size of areas: 10 to 60 acres

Typical Profile

Surface layer:
0 to 6 inches—brown, friable silt loam
Subsoil:
6 to 12 inches—yellowish brown, friable silt loam
12 to 20 inches—yellowish brown, friable loam
20 to 36 inches—yellowish brown, friable channery and very channery loam
Bedrock:
36 to 41 inches—yellowish red, fine grained sandstone

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 4.2 inches)

Composition

Gilpin soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Soils that are shallow to bedrock

Contrasting components:
- Coshocton soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GnA—Glenford silt loam, 0 to 2 percent slopes

Setting

Landform: Terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 5 to 30 acres

Typical Profile

Surface layer:
0 to 9 inches—brown, friable silt loam
Subsoil:
9 to 15 inches—yellowish brown, friable silt loam
15 to 35 inches—yellowish brown and strong brown, mottled, friable and firm silty clay loam
35 to 47 inches—strong brown, mottled, firm stratified silty clay loam and loam
Substratum:
47 to 80 inches—strong brown, friable stratified fine silt loam, sandy loam, and loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.3 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Glenford soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Well drained soils
- Soils that have more sand in the subsoil than the Glenford soil

Contrasting components:
- Fitchville soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GnB—Glenford silt loam, 2 to 6 percent slopes

Setting

Landform: Terraces
Position on the landform: Drainageways, treads
Slope range: 2 to 6 percent
Size of areas: 5 to 30 acres

Typical Profile

Surface layer:
0 to 11 inches—brown, friable silt loam
Subsoil:
11 to 21 inches—yellowish brown, friable silt loam
21 to 31 inches—yellowish brown, mottled, firm silty clay loam
31 to 54 inches—yellowish brown, mottled, firm silt loam
Substratum:
54 to 80 inches—yellowish brown, friable stratified silt loam and very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.3 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Glenford soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Well drained soils
- Soils that have more sand in the subsoil than the Glenford soil

Contrasting components:
- Fitchville soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GnC—Glenford silt loam, 6 to 15 percent slopes

Setting

Landform: Terraces
Position on the landform: Treads, risers, drainageways
Slope range: 6 to 15 percent
Size of areas: 5 to 50 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 15 inches—yellowish brown, friable silt loam
15 to 28 inches—yellowish brown, mottled, friable silty clay loam
28 to 40 inches—yellowish brown, mottled, friable silt loam
Substratum:
40 to 80 inches—yellowish brown, mottled, friable silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate

Potential for frost action: High
Available water capacity: High (generally 9.3 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Glenford soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Well drained soils
- Soils that have more sand in the subsoil than the Glenford soil
- Eroded soils

Contrasting components:
- Soils that have slopes of more than 15 percent and are along drainageways
- Soils that have a clayey substratum

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GpA—Glenford silt loam, occasionally flooded

Setting

Landform: Terraces
Position on the landform: Treads
Slope range: 0 to 3 percent
Size of areas: 10 to 50 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 15 inches—yellowish brown, friable silt loam
15 to 29 inches—strong brown, mottled, friable silt loam and silty clay loam
29 to 48 inches—strong brown, mottled, friable silt loam
Substratum:
48 to 80 inches—yellowish brown, mottled, friable stratified silt loam and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.4 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Glenford soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more sand in the subsoil than the Glenford soil

Contrasting components:
- Euclid soils in the lower landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GuC—Guernsey silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 6 to 15 percent
Size of areas: 10 to 30 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam

Subsoil:
7 to 15 inches—yellowish brown, friable silt loam
15 to 23 inches—yellowish brown, mottled, friable silty clay loam
23 to 46 inches—yellowish brown and light yellowish brown, mottled, firm silty clay
Substratum:
46 to 80 inches—light olive brown, mottled, firm channery silty clay

Soil Properties and Qualities

Depth class: Deep and very deep (more than 50 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part; moderately slow or slow in the lower part
Dominant parent material: Shale residuum
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: High
Potential for frost action: High
Available water capacity: Moderate (generally 8.7 inches)
Cation-exchange capacity: 12 to 25 centimoles per kilogram

Composition

Guernsey soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Well drained soils
- Soils that have less clay in the subsoil than the Guernsey soil
- Eroded soils

Contrasting components:
- Somewhat poorly drained soils in concave areas
- Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GuD—Guernsey silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 10 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 9 inches—brown, friable silt loam
Subsoil:
9 to 16 inches—yellowish brown, friable silty clay loam
16 to 21 inches—brown and yellowish brown, mottled, firm silty clay loam
21 to 53 inches—yellowish brown and light olive brown, mottled, firm silty clay
Substratum:
53 to 80 inches—light olive brown and grayish brown, firm silty clay

Soil Properties and Qualities

Depth class: Deep and very deep (more than 50 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part; moderately slow or slow in the lower part
Dominant parent material: Shale residuum
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: High
Potential for frost action: High
Available water capacity: Moderate (generally 8.7 inches)
Cation-exchange capacity: 12 to 25 centimoles per kilogram
Other features: Slippage

Composition

Guernsey soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Well drained soils
- Soils that have less clay in the subsoil than the Guernsey soil

- Eroded soils

Contrasting components:
- Soils that have boulders on the surface
- Somewhat poorly drained soils in concave areas
- Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

HaD—Hazleton channery sandy loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 10 to 30 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable channery sandy loam
Subsoil:
8 to 20 inches—dark yellowish brown, friable channery sandy loam
20 to 40 inches—yellowish brown, friable very channery sandy loam
Substratum:
40 to 55 inches—light yellowish brown, very friable extremely channery loamy sand
Bedrock:
55 to 57 inches—fractured sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.5 inches)
Cation-exchange capacity: 15 to 30 centimoles per kilogram
Other features: High content of rock fragments

Composition

Hazleton soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that are moderately well drained

Contrasting components:
- Coshocton soils in the less sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

HaE—Hazleton channery sandy loam, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 35 percent
Size of areas: 20 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown, friable channery sandy loam
Subsoil:
3 to 21 inches—yellowish brown, very friable very channery sandy loam
21 to 42 inches—light yellowish brown, very friable extremely channery loamy sand
Substratum:
42 to 62 inches—light yellowish brown, very friable extremely channery loamy sand
Bedrock:
62 to 64 inches—fractured sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None

Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.9 inches)
Cation-exchange capacity: 15 to 30 centimoles per kilogram
Other features: High content of rock fragments

Composition

Hazleton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have fewer rock fragments in the subsoil than the Hazleton soil

Contrasting components:
- Coshocton soils in the less sloping areas
- Soils that are bouldery

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

HaF—Hazleton channery sandy loam, 35 to 70 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 35 to 70 percent
Size of areas: 40 to 200 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 3 inches—black, very friable channery sandy loam
Subsoil:
3 to 10 inches—yellowish brown, friable very channery sandy loam
10 to 41 inches—light yellowish brown, friable very channery and extremely channery sandy loam
Substratum:
41 to 60 inches—light yellowish brown, very friable extremely channery loamy sand
Bedrock:
60 to 65 inches—fractured sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.9 inches)
Cation-exchange capacity: 15 to 30 centimoles per kilogram
Other features: High content of rock fragments

Composition

Hazleton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have fewer rock fragments in the subsoil than the Hazleton soil
- Soils that have more stones on the surface than the Hazleton soil

Contrasting components:
- Clarksburg soils near the base of slopes
- Coshocton soils in the less sloping areas
- Somewhat poorly drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

HeF—Hazleton channery sandy loam, 25 to 70 percent slopes, very bouldery

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 70 percent
Size of areas: 40 to 300 acres

Note: Large boulders cover as much as 3 percent of surface; seeps and springs

Typical Profile

Surface layer:
0 to 4 inches—very dark brown, friable channery sandy loam
Subsoil:
4 to 35 inches—yellowish brown, friable very channery and extremely channery sandy loam
Substratum:
35 to 50 inches—light yellowish brown, very friable extremely channery loamy sand
Bedrock:
50 to 55 inches—fractured sandstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland (fig. 7)
Flooding: None
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 5.9 inches)
Cation-exchange capacity: 15 to 30 centimoles per kilogram
Other features: High content of rock fragments

Composition

Hazleton soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have more stones in the surface layer than the Hazleton soil

Contrasting components:
- Areas of rock outcrop on slope breaks to the uplands
- Clarksburg soils near the base of slopes
- Coshocton soils in the less sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

HoB—Homewood silt loam, 2 to 6 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 12 inches—yellowish brown, friable silt loam
12 to 27 inches—yellowish brown, friable loam
27 to 56 inches—yellowish brown, mottled, very firm and very brittle loam
56 to 70 inches—yellowish brown, mottled, firm loam
Substratum:
70 to 80 inches—yellowish brown, mottled, friable loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained or moderately well drained
Permeability: Moderate above the fragipan; slow in and below the fragipan
Dominant parent material: Glacial till
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.5 to 4.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.7 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram
Other features: Fragipan

Composition

Homewood soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately well drained

Figure 7.—Woodland is the major land use in areas of Hazleton channery sandy loam, 25 to 70 percent slopes, very bouldery.

Contrasting components:
- Loudon soils on slight rises
- Soils that do not have a fragipan and are in landscape positions similar to those of the Homewood soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

HoC—Homewood silt loam, 6 to 15 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 14 inches—yellowish brown, friable silt loam
14 to 28 inches—yellowish brown, firm loam
28 to 50 inches—yellowish brown, mottled, very firm and very brittle loam
50 to 65 inches—yellowish brown, mottled, firm loam
Substratum:
65 to 80 inches—yellowish brown, mottled, friable loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained or moderately well drained
Permeability: Moderate above the fragipan; slow in and below the fragipan
Dominant parent material: Glacial till
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.5 to 4.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.7 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram
Other features: Fragipan

Composition

Homewood soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Eroded soils
• Soils that are moderately deep to bedrock
Contrasting components:
• Loudon soils on slight rises
• Soils that do not have a fragipan and are in landscape positions similar to those of the Homewood soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

• “Woodland” section
• “Crops and Pasture” section
• “Recreation” section
• “Wildlife Habitat” section
• “Engineering” and “Soil Properties” sections

Ht—Huntington silt loam, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 20 to 100 acres
Note: Protected by flood-control structures but flooding still possible

Typical Profile

Surface layer:
0 to 14 inches—very dark brown, friable silt loam
Subsurface layer:
14 to 20 inches—dark brown, friable silt loam
Subsoil:
20 to 28 inches—dark yellowish brown, friable silt loam
28 to 42 inches—dark yellowish brown, friable very fine sandy loam
Substratum:
42 to 80 inches—dark yellowish brown, very friable stratified fine sandy loam and loamy fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Content of organic matter in the surface layer: Moderate or high (3 to 6 percent)
Potential for frost action: High
Available water capacity: High (generally 10.7 inches)
Other features: Thick, dark surface layer

Composition

Huntington soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more sand in the surface layer and subsoil than the Huntington soil
• Soils that have a light colored surface layer
Contrasting components:
• Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

JmA—Jimtown loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Closed depressions
Slope range: 0 to 2 percent
Size of areas: 5 to 30 acres

Typical Profile

Surface layer:
0 to 13 inches—dark brown, friable loam
Subsoil:
13 to 21 inches—brown, mottled, friable loam
21 to 28 inches—light brownish gray, mottled, firm loam
28 to 43 inches—dark grayish brown, mottled, friable gravelly sandy loam
Substratum:
43 to 80 inches—olive gray, mottled, loose gravelly and very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderate
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 or 3 percent)
Potential for frost action: High
Available water capacity: Moderate (generally 7.3 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Jimtown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have a dark surface layer
• Soils that have less sand in the surface layer and subsoil than the Jimtown soil
• Soils that have more clay in the subsoil than the Jimtown soil
Contrasting components:
• Sebring soils
• Moderately well drained soils in the higher landscape positions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

KeB—Keene silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 10 to 40 acres

Typical Profile

Surface layer:
0 to 9 inches—dark grayish brown, friable silt loam
Subsurface layer:
9 to 12 inches—yellowish brown, friable silt loam
Subsoil:
12 to 20 inches—yellowish brown, friable silt loam and silty clay loam
20 to 25 inches—yellowish brown, mottled, friable silty clay loam
25 to 52 inches—yellowish brown and gray, mottled, firm silty clay loam and channery silty clay loam

Bedrock:
52 to 57 inches—gray, weathered shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 80 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the subsoil; moderately slow or slow in the lower part of the subsoil
Dominant parent material: Loess over material weathered from shale and siltstone
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Keene soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Keene soil
• Soils that have more sand in the subsoil than the Keene soil
Contrasting components:
• Gilpin soils in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

KeC—Keene silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 10 to 60 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 13 inches—yellowish brown, friable silt loam
13 to 21 inches—yellowish brown, mottled, friable silty clay loam
21 to 40 inches—yellowish brown, mottled, firm silty clay loam
40 to 55 inches—yellowish brown and grayish brown, mottled, firm channery silty clay loam
Bedrock:
55 to 60 inches—gray, weathered shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 80 inches)
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the subsoil; moderately slow or slow in the lower part of the subsoil
Dominant parent material: Loess over material weathered from shale and siltstone
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 10 to 18 centimoles per kilogram

Composition

Keene soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more clay in the subsoil than the Keene soil
• Soils that have more sand in the subsoil than the Keene soil
Contrasting components:
• Gilpin soils in the more sloping areas
• Westmoreland soils on the steeper part of slopes
• Poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

La—Landes sandy loam, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 20 to 200 acres

Typical Profile

Surface layer:
0 to 10 inches—very dark brown, friable sandy loam
Subsurface layer:
10 to 15 inches—very dark brown, friable loam
Subsoil:
15 to 23 inches—brown, friable fine sandy loam
23 to 38 inches—yellowish brown, friable fine sandy loam
Substratum:
38 to 80 inches—yellowish brown, friable stratified loamy sand, fine sandy loam, and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.6 inches)
Cation-exchange capacity: 6 to 16 centimoles per kilogram
Other features: Thick, dark surface layer

Composition

Landes soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have a light colored surface layer
• Soils that have more sand in the subsoil than the Landes soil
Contrasting components:
• Moderately well drained soils in depressions and along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Lb—Landes loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 20 to 200 acres

Typical Profile

Surface layer:
0 to 10 inches—very dark brown, friable loam
Subsurface layer:
10 to 18 inches—very dark grayish brown, friable fine sandy loam
Subsoil:
18 to 34 inches—dark yellowish brown, friable loamy fine sand and fine sandy loam
Substratum:
34 to 80 inches—brown, loose loamy fine sand and loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8.4 inches)

Cation-exchange capacity: 8 to 17 centimoles per kilogram
Other features: Thick, dark surface layer

Composition

Landes soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have a light colored surface layer
Contrasting components:
• Moderately well drained soils in depressions and along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

Lo—Lobdell silt loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 10 to 100 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 9 inches—brown, friable silt loam
Subsoil:
9 to 17 inches—dark yellowish brown, friable silt loam
17 to 38 inches—dark yellowish brown and brown, mottled loam
38 to 47 inches—light brownish gray, mottled, friable silt loam
Substratum:
47 to 80 inches—light brownish gray, mottled, friable loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 11.3 inches)
Cation-exchange capacity: 8 to 17 centimoles per kilogram

Composition

Lobdell soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more sand in the surface layer or subsoil than the Lobdell soil
Contrasting components:
• Orrville soils in concave areas
• Soils that have slopes of 2 to 6 percent

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

LrB—Loudon silt loam, 2 to 6 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 10 to 40 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 18 inches—yellowish brown, friable silty clay loam
18 to 36 inches—yellowish brown, mottled, firm clay loam
36 to 50 inches—yellowish brown, mottled, firm silty clay

Substratum:
50 to 65 inches—yellowish brown, mottled, firm silty clay
Bedrock:
65 to 70 inches—grayish brown, soft interbedded siltstone and shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 80 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Loess over glacial till that is underlain by material weathered from shale and siltstone
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.1 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Loudon soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have a thicker layer of glacial till than that of the Loudon soil
• Soils that have a thinner layer of glacial till than that of the Loudon soil
Contrasting components:
• Poorly drained soils
• Titusville soils in the flatter areas
• Aaron soils in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LrC—Loudon silt loam, 6 to 15 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 15 inches—dark yellowish brown, friable silt loam
15 to 22 inches—yellowish brown, friable clay loam
22 to 40 inches—yellowish brown, mottled, firm clay loam
40 to 50 inches—yellowish brown, mottled, firm silty clay
Substratum:
50 to 80 inches—yellowish brown, mottled, firm silty clay

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 80 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Loess over glacial till that is underlain by material weathered from shale and siltstone
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 2.0 to 3.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.1 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Loudon soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have a thicker layer of glacial till than that of the Loudon soil
• Soils that have a thinner layer of glacial till than that of the Loudon soil

Contrasting components:
- Poorly drained soils
- Titusville soils in the flatter areas
- Aaron soils in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LvC—Loudonville silt loam, 6 to 15 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 10 acres

Typical Profile

Surface layer:
0 to 9 inches—brown, very friable silt loam
Subsoil:
9 to 25 inches—strong brown, firm loam
25 to 32 inches—strong brown, firm very channery silt loam
Bedrock:
32 to 34 inches—light olive brown interbedded sandstone, siltstone, and shale

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Glacial till over material weathered from sandstone and siltstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)
Cation-exchange capacity: 8 to 18 centimoles per kilogram

Composition

Loudonville soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Eroded soils
- Soils that do not have a layer of glacial till

Contrasting components:
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LvD—Loudonville silt loam, 15 to 20 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits, backslopes
Slope range: 15 to 20 percent
Size of areas: 5 to 30 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 17 inches—dark yellowish brown, friable loam and channery loam
17 to 28 inches—dark yellowish brown, friable channery sandy loam
Bedrock:
28 to 33 inches—yellowish brown sandstone

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Glacial till over material weathered from sandstone and siltstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Low (generally 5 inches)

Cation-exchange capacity: 8 to 18 centimoles per kilogram

Composition

Loudonville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are deep to bedrock
- Soils that are shallow to bedrock

Contrasting components:
- Coshocton soils in landscape positions similar to those of the Loudonville soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MaB—Markland silt loam, 2 to 6 percent slopes

Setting

Landform: Lake plains, terraces
Position on the landform: Drainageways, treads
Slope range: 2 to 6 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsurface layer:
8 to 12 inches—yellowish brown, friable silt loam
Subsoil:
12 to 18 inches—yellowish brown, firm silty clay loam
18 to 43 inches—brown, mottled, firm silty clay
Substratum:
43 to 49 inches—grayish brown, mottled, firm silty clay
49 to 80 inches—light olive brown, mottled, firm stratified silty clay to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained or moderately well drained
Permeability: Slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or high (3 to 6 percent)
Shrink-swell potential: High
Potential for frost action: Moderate
Available water capacity: High (generally 10.1 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram
Other features: More than 40 percent clay in the subsoil

Composition

Markland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have less silt in the surface layer than the Markland soil

Contrasting components:
- Caneadea soils in depressions and along drainageways
- Glenford soils in landscape positions similar to those of the Markland soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MaC—Markland silt loam, 6 to 15 percent slopes

Setting

Landform: Lake plains, terraces
Position on the landform: Treads, risers, drainageways
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 15 inches—yellowish brown, friable silty clay loam
15 to 22 inches—yellowish brown, firm silty clay
22 to 38 inches—strong brown, mottled, firm clay

Substratum:
38 to 80 inches—light olive brown, mottled, firm silty clay, silty clay loam, and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained or moderately well drained
Permeability: Slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderately low to high (1 to 5 percent)
Shrink-swell potential: High
Potential for frost action: Moderate
Available water capacity: High (generally 10.1 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram
Other features: More than 40 percent clay in the subsoil

Composition

Markland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Eroded soils

Contrasting components:
- Glenford soils in landscape positions similar to those of the Markland soil
- Caneadea soils in depressions and along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MaD2—Markland silt loam, 15 to 35 percent slopes, eroded

Setting

Landform: Lake plains, terraces
Position on the landform: Risers
Slope range: 15 to 35 percent
Size of areas: 10 to 60 acres
Note: Partial loss of surface layer

Typical Profile

Surface layer:
0 to 4 inches—brown, friable silt loam mixed with yellowish brown subsoil material
Subsoil:
4 to 23 inches—yellowish brown, firm silty clay
23 to 28 inches—yellowish brown, mottled, firm silty clay
Substratum:
28 to 45 inches—grayish brown, mottled, firm silty clay
45 to 80 inches—grayish brown, mottled, firm silty clay, silty clay loam, and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained or moderately well drained
Permeability: Slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderately low to high (1 to 5 percent)
Shrink-swell potential: High
Potential for frost action: Moderate
Available water capacity: High (generally 9.9 inches)
Cation-exchange capacity: 14 to 22 centimoles per kilogram
Other features: More than 40 percent clay in the subsoil

Composition

Markland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are not eroded
- Soils that have a surface layer of sandy loam

Contrasting components:
- Watertown soils in landscape positions similar to those of the Markland soil
- Soils that have slopes of more than 35 percent
- Soils that have less clay than the Markland soil and are in the more sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Mg—Melvin silt loam, frequently flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 5 to 200 acres

Typical Profile

Surface layer:
0 to 7 inches—dark grayish brown, mottled, friable silt loam
Subsoil:
7 to 30 inches—olive gray, mottled, friable silt loam
Substratum:
30 to 80 inches—gray, friable silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Frequent
Kind of water table: Apparent
Seasonal high water table: Within a depth of 1 foot
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 12 inches)
Other features: Hydric soil

Composition

Melvin soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more sand in the solum than the Melvin soil
- Soils that have a dark surface layer

Contrasting components:
- Newark soils on slight rises
- Soils that are subject to occasional flooding

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Mh—Melvin silt loam, ponded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains, closed depressions
Slope range: 0 to 2 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 7 inches—dark grayish brown, friable silt loam
Subsoil:
7 to 29 inches—gray, mottled, friable silt loam
Substratum:
29 to 80 inches—gray, mottled, friable silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Frequent
Kind of water table: Apparent
Seasonal high water table: 0.5 foot above to 0.5 foot below the surface
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Available water capacity: High (generally 12 inches)
Cation-exchange capacity: 5 to 10 centimoles per kilogram
Other features: Hydric soil

Composition

Melvin soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more sand in the solum than the Melvin soil

Contrasting components:
- Zipp soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MnA—Mentor silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 5 to 80 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 17 inches—dark yellowish brown, friable silt loam
17 to 27 inches—dark yellowish brown, friable silty clay loam
27 to 50 inches—dark yellowish brown, friable silt loam
Substratum:
50 to 80 inches—brown and strong brown, friable stratified fine sandy loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 4 to 6 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 11.3 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram

Composition

Mentor soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more sand in the subsoil than the Mentor soil

Contrasting components:
- Glenford soils in concave areas
- Fitchville soils in depressions and along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MnB—Mentor silt loam, 2 to 6 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads, drainageways
Slope range: 2 to 6 percent
Size of areas: 5 to 60 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 24 inches—yellowish brown, friable silt loam
24 to 30 inches—yellowish brown, friable silt loam
30 to 48 inches—yellowish brown, friable silt loam
Substratum:
48 to 80 inches—yellowish brown, friable stratified sandy loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 4 to 6 feet

Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 11.3 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram

Composition

Mentor soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more sand in the subsoil than the Mentor soil
Contrasting components:
• Glenford soils in concave areas
• Fitchville soils in depressions and along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MnC—Mentor silt loam, 6 to 15 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Risers
Slope range: 6 to 15 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 26 inches—dark yellowish brown, friable silt loam
26 to 40 inches—yellowish brown, friable silt loam
Substratum:
40 to 80 inches—yellowish brown, friable stratified fine sandy loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 4 to 6 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 11.3 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram

Composition

Mentor soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more sand in the subsoil than the Mentor soil
• Eroded soils
• Soils that have more sand in the surface layer than the Mentor soil
Contrasting components:
• Glenford soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MnD—Mentor silt loam, 15 to 25 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Risers
Slope range: 15 to 25 percent
Size of areas: 10 to 40 acres
Note: Highly dissected terraces

Typical Profile

Surface layer:
0 to 6 inches—brown, friable silt loam
Subsurface layer:
6 to 9 inches—dark grayish brown, friable silt loam
Subsoil:
9 to 27 inches—yellowish brown, friable silt loam

27 to 42 inches—yellowish brown, friable silt loam
Substratum:
42 to 80 inches—yellowish brown, friable stratified silt loam and sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 4 to 6 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 11.3 inches)
Cation-exchange capacity: 8 to 20 centimoles per kilogram

Composition

Mentor soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more sand in the surface layer or subsoil than the Mentor soil

Contrasting components:
- Glenford soils in concave areas
- Steep soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Ne—Newark silt loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 20 to 100 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown, friable silt loam
Subsoil:
8 to 15 inches—brown, mottled, friable silt loam
15 to 30 inches—grayish brown, mottled, friable silt loam
Substratum:
30 to 80 inches—yellowish brown and light brownish gray, mottled, friable silt loam and loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 0.5 foot to 1.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: High
Available water capacity: High (generally 11.6 inches)

Composition

Newark soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are more acid than the Newark soil
- Soils that have more sand in the subsoil than the Newark soil

Contrasting components:
- Melvin soils
- Lobdell soils on slight rises

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Nf—Newark silt loam, frequently flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains

Slope range: 0 to 2 percent
Size of areas: 20 to 60 acres
Note: 50 percent or more chance of flooding every year

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown, friable silt loam
Subsurface layer:
10 to 16 inches—brown, mottled, friable silt loam
Subsoil:
16 to 24 inches—dark grayish brown, mottled, friable silt loam
24 to 32 inches—light brownish gray, mottled, friable silt loam
Substratum:
32 to 80 inches—strong brown, mottled, friable stratified fine sandy loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Frequent (fig. 8)
Kind of water table: Apparent
Depth to the water table: 0.5 foot to 1.5 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: High
Available water capacity: High (generally 11.6 inches)

Composition

Newark soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that are more acid than the Newark soil
• Soils that have more sand in the subsoil than the Newark soil
Contrasting components:
• Melvin soils
• Lobdell soils on slight rises
• Soils that are not flooded as often as the Newark soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Nn—Nolin silt loam, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 40 to 100 acres
Note: Protected by flood-control structures but flooding still possible

Typical Profile

Surface layer:
0 to 12 inches—brown, friable silt loam
Subsoil:
12 to 48 inches—dark yellowish brown and brown, friable silt loam
Substratum:
48 to 80 inches—dark yellowish brown, friable loam and fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Available water capacity: High (generally 11.7 inches)
Cation-exchange capacity: 6 to 20 centimoles per kilogram

Composition

Nolin soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more sand in the subsoil than the Nolin soil
Contrasting components:
• Lobdell soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

Figure 8.—Flooding is a problem in areas of Newark silt loam, frequently flooded.

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

No—Nolin silt loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 10 to 100 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 44 inches—dark yellowish brown and brown, friable silt loam
Substratum:
44 to 80 inches—dark yellowish brown, friable loam and sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Available water capacity: High (generally 11.7 inches)
Cation-exchange capacity: 6 to 20 centimoles per kilogram

Composition

Nolin soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more sand in the subsoil than the Nolin soil
Contrasting components:
• Lobdell soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

Or—Orrville silt loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 10 to 200 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 10 inches—dark grayish brown, friable silt loam
Subsoil:
10 to 18 inches—dark yellowish brown, mottled, friable silt loam
18 to 30 inches—grayish brown, mottled, friable loam
30 to 48 inches—grayish brown and gray, mottled, friable and firm silty clay loam
Substratum:
48 to 80 inches—gray, mottled, loose loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Permeability: Moderate
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 1.0 to 2.5 feet
Content of organic matter in the surface layer: Moderate (2 to 4 percent)
Potential for frost action: High
Available water capacity: High (generally 9.8 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Orrville soil and similar components: 80 percent
Inclusions: 20 percent

Inclusions

Similar components:
• Soils that have more sand or gravel in the surface layer than the Orrville soil
• Soils that have less clay in the subsoil than the Orrville soil
Contrasting components:
• Melvin soils
• Lobdell soils on slight rises
• Tioga soils in narrow areas adjacent to stream channels

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

Pg—Pits, gravel

Setting

Landform: Outwash terraces, flood plains, stream terraces
Position on the landform: Treads, risers, steps of flood plains
Size of areas: 5 to 300 acres

Composition

Pits: 100 percent
Inclusions: None

Use and Management

Onsite investigation is needed to determine the limitations affecting any proposed use.

Ph—Pits, quarry

Setting

Landform: Hills
Position on the landform: Summits, backslopes
Size of areas: 5 to 20 acres

Composition

Pits: 100 percent
Inclusions: None

Use and Management

Onsite investigation is needed to determine the limitations affecting any proposed use.

RcC—Richland silt loam, 6 to 15 percent slopes

Setting

Landform: Hills, alluvial fans
Position on the landform: Footslopes
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 6 inches—brown, friable silt loam
Subsoil:
6 to 35 inches—yellowish brown, friable channery loam
35 to 55 inches—yellowish brown, friable very channery loam
Substratum:
55 to 80 inches—dark yellowish brown, friable very channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Colluvium
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.7 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Richland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more rock fragments in the surface layer than the Richland soil
• Soils that have less sand in the subsoil than the Richland soil
Contrasting components:
• Coshocton soils in concave areas
• Soils that have stones on the surface and are at the base of the steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RcD—Richland silt loam, 15 to 25 percent slopes

Setting

Landform: Hills, alluvial fans
Position on the landform: Footslopes
Slope range: 15 to 25 percent
Size of areas: 5 to 60 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown, very friable silt loam
Subsoil:
5 to 18 inches—brown, very friable channery silt loam
18 to 30 inches—brown, very friable channery loam
30 to 50 inches—yellowish brown, very friable very channery loam
Substratum:
50 to 80 inches—dark yellowish brown, very friable very channery loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate

Dominant parent material: Colluvium
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7.7 inches)
Cation-exchange capacity: 10 to 20 centimoles per kilogram

Composition

Richland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more rock fragments in the surface layer than the Richland soil
- Soils that have less sand in the subsoil than the Richland soil

Contrasting components:
- Coshocton soils in landscape positions similar to those of the Richland soil
- Soils that have slopes of more than 25 percent and are in depressions or along drainageways
- Soils that have stones on the surface and are at the base of the steeper slopes

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RgC—Rigley sandy loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, shoulders, footslopes
Slope range: 6 to 15 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown, friable sandy loam
Subsurface layer:
6 to 16 inches—yellowish brown, friable sandy loam
Subsoil:
16 to 26 inches—yellowish brown, friable sandy loam
26 to 30 inches—yellowish brown, friable channery loam
30 to 46 inches—brown, friable sandy loam
Substratum:
46 to 65 inches—brown, very friable channery loamy sand
Bedrock:
65 to 70 inches—interbedded sandstone and shale

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Available water capacity: Moderate (generally 7.2 inches)

Composition

Rigley soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that are moderately deep to bedrock
- Soils that have more clay in the subsoil than the Rigley soil
- Eroded soils

Contrasting components:
- Moderately well drained soils in concave areas on slopes and near the base of sloping areas
- Soils that have shale in the substratum and are in landscape positions similar to those of the Rigley soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section

- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RgD—Rigley sandy loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 15 to 25 percent
Size of areas: 5 to 100 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable sandy loam
Subsoil:
7 to 10 inches—brown, very friable fine sandy loam
10 to 22 inches—yellowish brown, friable sandy loam
22 to 44 inches—strong brown, friable and firm channery loam and channery sandy loam
44 to 57 inches—light yellowish brown, very friable very channery sandy loam
Substratum:
57 to 70 inches—light yellowish brown, loose very channery loamy sand
Bedrock:
70 to 72 inches—light yellowish brown, weathered sandstone

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Available water capacity: Moderate (generally 7.2 inches)

Composition

Rigley soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more rock fragments in the surface layer than the Rigley soil
- Soils that have less sand in the surface layer than the Rigley soil

Contrasting components:
- Moderately well drained soils in concave areas on slopes and near the base of sloping areas
- Soils that have shale in the substratum and are in landscape positions similar to those of the Rigley soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RgE—Rigley sandy loam, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 20 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown, very friable sandy loam
Subsurface layer:
5 to 10 inches—light yellowish brown, friable channery sandy loam
Subsoil:
10 to 38 inches—yellowish brown and light yellowish brown, friable sandy loam
38 to 52 inches—light yellowish brown, friable channery sandy loam
Substratum:
52 to 62 inches—light yellowish brown, friable very channery sandy loam
Bedrock:
62 to 67 inches—fractured sandstone bedrock

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)

Available water capacity: Moderate (generally 7.1 inches)

Composition

Rigley soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Soils that have more rock fragments in the surface layer or subsoil than the Rigley soil
• Soils that have more clay in the subsoil than the Rigley soil
Contrasting components:
• Somewhat poorly drained soils in concave areas
• Soils that have boulders on the surface and are in landscape positions similar to those of the Rigley soil
• Coshocton soils in the less sloping areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RhD—Rigley sandy loam, 12 to 25 percent slopes, very stony

Setting

Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 12 to 25 percent
Size of areas: 10 to 30 acres
Note: Stones cover as much as 3 percent of the surface; seeps and springs

Typical Profile

Surface layer:
0 to 6 inches—brown, friable sandy loam
Subsoil:
6 to 20 inches—yellowish brown, friable sandy loam
20 to 30 inches—yellowish brown, friable channery sandy loam
30 to 50 inches—yellowish brown, friable very channery sandy loam
Substratum:
50 to 80 inches—yellowish brown, friable channery sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Dominant parent material: Sandstone residuum
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: Moderate (generally 7.1 inches)

Composition

Rigley soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Well drained soils
• Soils that have fewer rock fragments in the subsoil than the Rigley soil
Contrasting components:
• Coshocton soils in concave areas
• Soils that have boulders on the surface and are in landscape positions similar to those of the Rigley soil
• Soils that have shale in the substratum

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Se—Sebring silt loam

Setting

Landform: Lake plains, stream terraces
Position on the landform: Closed depressions
Slope range: 0 to 2 percent
Size of areas: 5 to 30 acres
Note: Ponding

Typical Profile

Surface layer:
0 to 7 inches—grayish brown, friable silt loam
Subsoil:
7 to 13 inches—gray, mottled, friable silty clay loam
13 to 33 inches—grayish brown and light brownish

gray, mottled, firm silty clay loam
33 to 48 inches—light brownish gray, mottled, friable silt loam
Substratum:
48 to 80 inches—light brownish gray, mottled, friable stratified silt loam, silty clay loam, loam, and silty clay

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Permeability: Moderately slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland
Flooding: None
Kind of water table: Apparent
Seasonal high water table: 1 foot above to 1 foot below the surface
Content of organic matter in the surface layer: Moderate or high (3 to 5 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: High (generally 9.6 inches)
Cation-exchange capacity: 15 to 27 centimoles per kilogram
Other features: Hydric soil

Composition

Sebring soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more clay in the surface layer or subsoil than the Sebring soil
Contrasting components:
• Fitchville soils on slight rises

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Th—Tioga fine sandy loam, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 40 to 300 acres
Note: Protected by flood-control structures but flooding still possible

Typical Profile

Surface layer:
0 to 11 inches—brown, very friable fine sandy loam
Subsoil:
11 to 36 inches—brown, very friable fine sandy loam
Substratum:
36 to 80 inches—yellowish brown, very friable fine sandy loam, loamy fine sand, and sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the solum; moderate to rapid in the substratum
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or high (2 to 6 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 12 to 28 centimoles per kilogram

Composition

Tioga soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have less sand in the surface layer or subsoil than the Tioga soil
• Soils that have more gravel in the surface layer than the Tioga soil
Contrasting components:
• Soils that have gravel in the subsoil
• Moderately well drained soils in enclosed depressions and along oxbows

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section

- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Tk—Tioga fine sandy loam, occasionally flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 20 to 100 acres
Note: 5 to 50 percent chance of flooding every year

Typical Profile

Surface layer:
0 to 9 inches—brown, friable fine sandy loam
Subsoil:
9 to 27 inches—yellowish brown, friable silt loam
Substratum:
27 to 80 inches—yellowish brown, loose loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the solum; moderate to rapid in the substratum
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Occasional
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or high (2 to 6 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 12 to 28 centimoles per kilogram

Composition

Tioga soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have less sand in the surface layer than the Tioga soil
- Soils that have more gravel in the surface layer than the Tioga soil

Contrasting components:
- Orrville soils in enclosed depressions and along oxbows
- Soils that have gravel in the substratum

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Tm—Tioga fine sandy loam, frequently flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 10 to 40 acres
Note: 50 percent or more chance of flooding every year

Typical Profile

Surface layer:
0 to 7 inches—brown, friable fine sandy loam
Subsoil:
7 to 36 inches—yellowish brown, friable fine sandy loam
Substratum:
36 to 80 inches—yellowish brown, loose loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the solum; moderate to rapid in the substratum
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Frequent
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer: Moderate or high (2 to 6 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 12 to 28 centimoles per kilogram

Composition

Tioga soil and similar components: 95 percent
Inclusions: 5 percent

Inclusions

Similar components:
• Soils that have less sand in the surface layer than the Tioga soil
Contrasting components:
• Melvin soils

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

To—Tioga-Urban land complex, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 600 acres
Note: Area protected by flood-control structures but flooding still possible

Typical Profile

Tioga

Surface layer:
0 to 11 inches—brown, very friable fine sandy loam
Subsoil:
11 to 36 inches—brown, very friable fine sandy loam
Substratum:
36 to 80 inches—yellowish brown, very friable fine sandy loam and loamy fine sand

Urban land

The Urban land is covered by streets, parking lots, buildings, and other structures that so obscure or alter the soils that identification is not feasible.

Soil Properties and Qualities

Tioga

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the solum; moderate to rapid in the substratum
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Kind of water table: Apparent
Depth to the water table: 3 to 6 feet
Content of organic matter in the surface layer : Moderate or high (2 to 6 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 8 inches)
Cation-exchange capacity: 12 to 28 centimoles per kilogram

Composition

Tioga soil and similar components: 50 percent
Urban land: 30 percent
Inclusions: 20 percent

Inclusions

Similar components:
• Soils that have more sand and gravel in the subsoil than the Tioga soil
Contrasting components:
• Disturbed soils
• Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

TsB—Titusville silt loam, 2 to 6 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits
Slope range: 2 to 6 percent
Size of areas: 10 to 60 acres

Typical Profile

Surface layer:
0 to 9 inches—brown, friable silt loam
Subsoil:
9 to 13 inches—yellowish brown, friable silt loam
13 to 26 inches—yellowish brown, mottled, firm silty clay loam and clay loam
26 to 42 inches—a fragipan of strong brown and yellowish brown, mottled, very firm clay loam and loam

42 to 70 inches—yellowish brown, mottled, firm and very firm clay loam
70 to 80 inches—dark yellowish brown, mottled, firm clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Glacial till
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 7.3 inches)
Cation-exchange capacity: 7 to 16 centimoles per kilogram
Other features: Fragipan

Composition

Titusville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Well drained soils
Contrasting components:
• Poorly drained soils
• Loudon soils in landscape positions similar to those of the Titusville soil
• Soils that do not have a fragipan

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

• “Woodland” section
• “Crops and Pasture” section
• “Recreation” section
• “Wildlife Habitat” section
• “Engineering” and “Soil Properties” sections

TsC—Titusville silt loam, 6 to 15 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 10 to 80 acres

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 14 inches—yellowish brown, firm clay loam
14 to 24 inches—yellowish brown, mottled, firm clay loam
24 to 40 inches—a fragipan of yellowish brown, mottled, very firm loam
40 to 80 inches—yellowish brown, mottled, firm loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Permeability: Slow
Dominant parent material: Glacial till
Native plant cover: Woodland
Flooding: None
Kind of water table: Perched
Depth to the water table: 1.5 to 3.0 feet
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: Moderate
Potential for frost action: High
Available water capacity: Moderate (generally 7.3 inches)
Cation-exchange capacity: 7 to 16 centimoles per kilogram
Other features: Fragipan

Composition

Titusville soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
• Well drained soils
• Eroded soils
Contrasting components:
• Poorly drained soils
• Loudon soils in landscape positions similar to those of the Titusville soil
• Soils that do not have a fragipan and are in dissected areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

• “Woodland” section
• “Crops and Pasture” section

- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Ug—Udorthents, loamy

Setting

General description: These soils are in areas that have been cut or filled. They are mainly in construction areas, around factories and highways, in landfill areas that have been resoiled and revegetated, and in areas altered by coal mining activities (other than actual mining) or other earth moving operations.
Slope range: 0 to 15 percent
Size of areas: 5 to 200 acres

Typical Profile

Typically, the upper 60 inches is silty clay loam, clay loam, silt loam, loam, or the channery analogs of those textures. In areas where soil material has been removed, the remaining soil material typically is similar to that in the subsoil or substratum of the adjacent soils.

Inclusions

Contrasting components:
- Areas where the soil material has been scraped to bedrock

Soil Properties and Qualities

The soil properties of these soils vary more than those in other map units. Onsite investigation is needed to determine the limitations affecting any proposed use.

Uh—Udorthents, loamy-skeletal

Setting

General description: These soils are in areas that have been mined for gravel and then reclaimed.
Slope range: 2 to 15 percent
Size of areas: 10 to 60 acres

Typical Profile

Most of the replaced material is sandy with a high content of gravel. In many areas the surface layer is gravelly.

Inclusions

- A few areas of soils that have slopes of more than 15 percent

Soil Properties and Qualities

The soil properties of these soils vary more than those in other map units. Onsite investigation is needed to determine the limitations affecting any proposed use.

Up—Udorthents-Pits complex

Setting

General description: This map unit consists mostly of areas that are actively being surfaced mined primarily for coal (fig. 9), but it includes areas mined for clay and limestone. The adjacent areas that have been mined are in the process of reclamation.
Slope range: Udorthents—gently sloping to steep; Pits—nearly level with nearly vertical walls
Size of areas: 80 to 400 acres

Typical Profile

Typically, the Udorthents are a mixture of rock fragments and partly weathered fines. They also include stockpiles of topsoil and other soil material used in the later reclamation of the area. The mixture of rock fragments and partly weathered fines is in cone-shaped piles 10 to 70 feet high or has been leveled in partially reclaimed mined areas. These partially reclaimed mined areas are adjacent to the active mines. They have been filled and leveled but do not have part or all of the 0.5 foot to 3 feet of reconstructed natural soil material and topsoil that will later be applied in the final reclamation of the area.

Composition

Udorthents and similar components: 70 percent
Pits and similar components: 20 percent
Inclusions: 10 percent

Inclusions

- Some moderately deep and deep soils around the edges of Pits or in small scattered areas within the Pits

Soil Properties and Qualities

The soil properties of the Udorthents vary more than those in other map units. Onsite investigation is needed to determine the limitations affecting any proposed use.

W—Water

This map unit consists of areas inundated with water for most of the year. It generally includes rivers,

Figure 9.—An active strip mine in an area of Udorthents-Pits complex in the background. Bethesda loam, 8 to 25 percent slopes, is in the foreground.

lakes, and ponds. No interpretations are given for the map unit.

WaA—Watertown sandy loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 20 to 150 acres

Typical Profile

Surface layer:
0 to 11 inches—dark yellowish brown, friable sandy loam
Subsoil:
11 to 21 inches—yellowish brown, friable sandy loam
21 to 30 inches—yellowish brown, very friable loamy coarse sand
Substratum:
30 to 40 inches—yellowish brown, loose sand
40 to 80 inches—light brownish gray, loose gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil; rapid in the lower part of the subsoil and in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland

Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.9 inches)
Cation-exchange capacity: 4 to 12 centimoles per kilogram
Other features: Droughtiness

Composition

Watertown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have a dark surface layer
- Soils that have more gravel in the surface layer than the Watertown soil
- Soils that have more clay in the subsoil than the Watertown soil

Contrasting components:
- Wheeling soils in landscape positions similar to those of the Watertown soil
- Soils that have more gravel in the subsoil than the Watertown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WaB—Watertown sandy loam, 2 to 6 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 2 to 6 percent
Size of areas: 10 to 40 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable sandy loam
Subsoil:
10 to 20 inches—yellowish brown, friable sandy loam
20 to 33 inches—yellowish brown, friable loamy sand
Substratum:
33 to 80 inches—strong brown, loose gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil; rapid in the lower part of the subsoil and in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.9 inches)
Cation-exchange capacity: 4 to 12 centimoles per kilogram
Other features: Droughtiness

Composition

Watertown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more clay in the subsoil than the Watertown soil
- Soils that have more gravel in the surface layer than the Watertown soil

Contrasting components:
- Soils that have more gravel in the subsoil than the Watertown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WaC—Watertown sandy loam, 6 to 15 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Risers
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres
Shape of areas: Small and narrow

Typical Profile

Surface layer:
0 to 9 inches—brown, friable sandy loam
Subsoil:
9 to 18 inches—strong brown, friable sandy loam
18 to 26 inches—strong brown, friable loamy sand
Substratum:
26 to 80 inches—strong brown, loose sand and gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil; rapid in the lower part of the subsoil and in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.9 inches)
Cation-exchange capacity: 4 to 12 centimoles per kilogram
Other features: Droughtiness

Composition

Watertown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more clay in the subsoil than the Watertown soil
- Soils that have more gravel in the surface layer than the Watertown soil
- Eroded soils

Contrasting components:
- Soils that have more gravel in the subsoil than the Watertown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WaD—Watertown sandy loam, 15 to 25 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Risers
Slope range: 15 to 25 percent
Size of areas: 10 to 20 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 6 inches—brown, friable sandy loam
Subsoil:
6 to 16 inches—yellowish brown, friable gravelly sandy loam
16 to 25 inches—yellowish brown, very friable gravelly sandy loam
25 to 42 inches—yellowish brown, very friable gravelly loamy sand
Substratum:
42 to 80 inches—yellowish brown, loose very gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil; rapid in the lower part of the subsoil and in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.9 inches)
Cation-exchange capacity: 4 to 12 centimoles per kilogram
Other features: Droughtiness

Composition

Watertown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more gravel in the surface layer than the Watertown soil

Contrasting components:
- Soils that have more gravel in the subsoil than the Watertown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WaF—Watertown sandy loam, 25 to 70 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Risers
Slope range: 25 to 70 percent
Size of areas: 10 to 40 acres
Shape of areas: Long and narrow

Typical Profile

Surface layer:
0 to 4 inches—brown, friable sandy loam
Subsoil:
4 to 24 inches—strong brown, friable sandy loam
24 to 40 inches—yellowish brown, very friable loamy sand
Substratum:
40 to 80 inches—yellowish brown, loose sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil; rapid in the lower part of the subsoil and in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderately low (1 or 2 percent)
Potential for frost action: Moderate
Available water capacity: Low (generally 3.9 inches)
Cation-exchange capacity: 4 to 12 centimoles per kilogram
Other features: Droughtiness

Composition

Watertown soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have more gravel in the surface layer than the Watertown soil
Contrasting components:
• Soils that have more gravel in the subsoil than the Watertown soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Wb—Wappinger sandy loam, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 40 to 100 acres
Note: Protected by flood-control structures but flooding still possible

Typical Profile

Surface layer:
0 to 8 inches—brown, very friable sandy loam
Subsoil:
8 to 26 inches—dark yellowish brown, friable and very friable silt loam
Substratum:
26 to 60 inches—yellowish brown, loose coarse sand
60 to 80 inches—yellowish brown, loose gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate in the subsoil; moderately rapid or rapid in the substratum
Dominant parent material: Alluvium
Native plant cover: Woodland
Flooding: Rare
Kind of water table: Apparent
Depth to the water table: 3 to 5 feet
Content of organic matter in the surface layer: Moderate or high (2 to 6 percent)
Potential for frost action: Moderate

Available water capacity: Moderate (generally 6 inches)
Cation-exchange capacity: 10 to 35 centimoles per kilogram

Composition

Wappinger soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Contrasting components:
- Moderately well drained soils in concave areas
- Soils that have more gravel in the subsoil than the Wappinger soil

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WeC—Wellston silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 20 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 27 inches—yellowish brown, friable silt loam
27 to 48 inches—yellowish brown, friable silt loam with 5 to 10 percent coarse fragments
Substratum:
48 to 70 inches—yellowish brown, firm clay loam
Bedrock:
70 to 72 inches—sandstone bedrock

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Loess over material weathered from sandstone, siltstone, and shale
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: High
Available water capacity: High (generally 9.6 inches)
Cation-exchange capacity: 8 to 16 centimoles per kilogram

Composition

Wellston soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Eroded soils
- Soils that have more sand in the subsoil than the Wellston soil
- Soils that are very deep to bedrock

Contrasting components:
- Keene soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WhC—Westmoreland silt loam, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Size of areas: 5 to 40 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 18 inches—yellowish brown, friable silt loam
18 to 32 inches—dark yellowish brown, firm silty clay loam
32 to 38 inches—yellowish brown, firm channery silty clay loam
Substratum:
38 to 48 inches—yellowish brown, friable very channery silt loam

Bedrock:
48 to 53 inches—light olive brown interbedded sandstone and shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from shale, siltstone, and sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.9 inches)
Cation-exchange capacity: 15 to 25 centimoles per kilogram

Composition

Westmoreland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Eroded soils
- Soils that are moderately deep to bedrock
- Soils that have more sand in the subsoil than the Westmoreland soil

Contrasting components:
- Coshocton soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WhD—Westmoreland silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Size of areas: 10 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 7 inches—brown, friable silt loam
Subsoil:
7 to 24 inches—strong brown, friable silt loam
24 to 38 inches—yellowish brown, friable channery loam
Substratum:
38 to 55 inches—yellowish brown, friable channery silty clay loam
Bedrock:
55 to 82 inches—light olive brown, weathered siltstone
82 to 84 inches—hard siltstone

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from shale, siltstone, and sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.9 inches)
Cation-exchange capacity: 15 to 25 centimoles per kilogram

Composition

Westmoreland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have a seasonal high water table at a depth of 4 to 6 feet
- Soils that are moderately deep to bedrock
- Soils that have more sand in the subsoil than the Westmoreland soil

Contrasting components:
- Coshocton soils in concave areas
- Very stony soils at the base of the steeper slopes
- Somewhat poorly drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section

- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WhE—Westmoreland silt loam, 25 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes
Slope range: 25 to 35 percent
Size of areas: 5 to 100 acres
Note: Seeps and springs

Typical Profile

Surface layer:
0 to 5 inches—brown, friable silt loam
Subsoil:
5 to 15 inches—yellowish brown, friable silty clay loam
15 to 39 inches—yellowish brown, friable channery loam
Substratum:
39 to 60 inches—yellowish brown, friable very channery loam
Bedrock:
60 to 65 inches—interbedded sandstone and shale

Soil Properties and Qualities

Depth class: Deep and very deep (40 to 72 inches)
Drainage class: Well drained
Permeability: Moderate
Dominant parent material: Material weathered from shale, siltstone, and sandstone
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 4 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.9 inches)
Cation-exchange capacity: 15 to 25 centimoles per kilogram

Composition

Westmoreland soil and similar components: 85 percent
Inclusions: 15 percent

Inclusions

Similar components:
- Soils that have more sand in the subsoil than the Westmoreland soil
- Soils that have more rock fragments in the subsoil than the Westmoreland soil

Contrasting components:
- Soils that have stones on the surface and are at the base of the steeper slopes
- Coshocton soils in the less sloping areas
- Somewhat poorly drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WnA—Wheeling silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Size of areas: 20 to 100 acres

Typical Profile

Surface layer:
0 to 10 inches—brown, friable silt loam
Subsoil:
10 to 34 inches—yellowish brown, firm loam
34 to 48 inches—yellowish brown, friable sandy loam
Substratum:
48 to 80 inches—strong brown, loose very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate in the subsoil; rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.8 inches)

Composition

Wheeling soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more sand in the surface layer than the Wheeling soil
- Soils that have more sand in the subsoil than the Wheeling soil

Contrasting components:
- Watertown soils on slight rises
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WnB—Wheeling silt loam, 2 to 6 percent slopes

Setting

Landform: Outwash terraces, stream terraces
Position on the landform: Treads
Slope range: 2 to 6 percent
Size of areas: 10 to 40 acres

Typical Profile

Surface layer:
0 to 8 inches—brown, friable silt loam
Subsoil:
8 to 30 inches—yellowish brown, firm loam
30 to 45 inches—yellowish brown, friable sandy loam
Substratum:
45 to 80 inches—strong brown, loose very gravelly loamy sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate in the subsoil; rapid in the substratum
Dominant parent material: Outwash
Native plant cover: Woodland
Flooding: None
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Potential for frost action: Moderate
Available water capacity: Moderate (generally 6.8 inches)

Composition

Wheeling soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
- Soils that have more sand in the surface layer than the Wheeling soil
- Soils that have more sand in the subsoil than the Wheeling soil

Contrasting components:
- Watertown soils on slight rises
- Moderately well drained soils in concave areas

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- "Woodland" section
- "Crops and Pasture" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

Zp—Zipp silty clay loam, frequently flooded

Setting

Landform: Flood plains
Position on the landform: Steps of flood plains
Slope range: 0 to 2 percent
Size of areas: 10 to 60 acres

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown, firm silty clay loam
Subsoil:
8 to 30 inches—dark gray and gray, mottled, very firm silty clay
Substratum:
30 to 60 inches—gray, mottled, very firm silty clay
60 to 80 inches—light gray, firm clay loam and sandy clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Very poorly drained
Permeability: Slow or very slow
Dominant parent material: Lacustrine sediments
Native plant cover: Woodland

Flooding: Frequent
Kind of water table: Apparent
Seasonal high water table: 0.5 foot above to 1 foot below the surface
Content of organic matter in the surface layer: Moderate or moderately low (1 to 3 percent)
Shrink-swell potential: High
Potential for frost action: Moderate
Available water capacity: Moderate (generally 7 inches)
Cation-exchange capacity: 12 to 30 centimoles per kilogram
Other features: High clay content in the subsoil; hydric soil

Composition

Zipp soil and similar components: 90 percent
Inclusions: 10 percent

Inclusions

Similar components:
• Soils that have less clay in the surface layer than the Zipp soil
Contrasting components:
• Soils that are subject to ponding and are in depressions

Management

For general and detailed information about managing this map unit, see the following sections in this publication:

- “Woodland” section
- “Crops and Pasture” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

The soils in the survey area are assigned to various interpretive groups in some of the tables. The groups for each map unit also are shown under the heading “Interpretive Groups,” which follows the tables at the back of this survey.

Crops and Pasture

This section was prepared by Timothy W. Halt, district conservationist, Natural Resources Conservation Service; Gene Bieber, area agronomist, Natural Resources Conservation Service; and Paul Golden, agriculture agent, Ohio State University Extension.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The paragraphs that follow describe the major problems in managing the cropland and pasture in Coshocton County. The main concerns are soil erosion, drainage, soil moisture, water quality in springs and shallow ground-water aquifers, and soil fertility.

Soil erosion is the major management problem on the soils in the county. It is a hazard on all soils that have slopes of more than 2 percent. Coshocton and Aaron soils, which are often tilled without applying proper management techniques, are especially susceptible to erosion. If intense rainfall occurs in tilled, steep, unprotected fields, erosion may exceed 100 tons per acre per year.

As erosion occurs, the surface layer of the soil is removed. It is the most productive part of the soil and has a higher content of organic matter and nutrients than the soil below the plow layer. The organic matter gives the topsoil its dark color and increases the ability of the soil to store moisture and nutrients. The loss of some of the surface layer through erosion considerably reduces the ability of the soil to supply nutrients and water to crops and pasture plants.

As the surface layer of a soil becomes thinner because of erosion, the plow layer extends into the subsoil. The subsoil of many of the soils in Coshocton County has a higher content of clay and coarse fragments than the original surface layer. When this subsoil material is mixed into the remainder of the surface layer, the soil becomes more difficult to work, provides a less desirable seedbed, and has poorer tilth.

In some of the soils in the county, rooting depth is restricted by a dense layer in the subsoil, by a fragipan, or by bedrock. These soils are especially fragile. Erosion reduces the depth to the restrictive layer and thereby reduces the volume of soil available for root development. Aaron, Guernsey, Homewood, Titusville, Germano, and Gilpin soils have a restricted root zone.

Soil erosion also results in sedimentation of lakes, ponds, streams, and rivers. The chemical runoff of pesticides or applied fertilizer adds to the pollution of these bodies of water.

Controlling erosion helps to maintain the productive capacity of the soil. Many methods to control erosion can be used. They include no-till and minimum tillage. Contour farming, applying barnyard manure, contour stripcropping, applying good crop residue management, including hay in the rotation, planting cover crops, and installing grassed waterways also help to control erosion (fig. 10).

Most of the soils in the county are well suited to no-till planting and other types of conservation tillage that leave crop residue on the surface. These tillage systems, which are becoming more and more accepted among farmers, help to control erosion by reducing the amount of soil exposed to the impact of raindrops and the flow of runoff. They are suitable on both smooth and irregular slopes. The increased amount of crop residue left on the surface also helps to prevent surface crusting and increases the infiltration rate. Contour farming, contour stripcropping, crop rotations, and grassed waterways can be used along with the conservation tillage system to further reduce the hazard of erosion.

Contour farming, or cross-slope tillage, can be quite effective in reducing the hazard of erosion in some gently sloping areas. The relatively long, smooth slopes in areas of Homewood silt loam, 2 to 6 percent slopes, and Keene silt loam, 2 to 6 percent slopes, can be easily tilled on the contour.

Contour stripcropping is an erosion-control practice that has been used extensively in Coshocton County for many years. Its use is most widespread on soils that have uniform slopes of 15 to 25 percent, such as on the Coshocton and Westmoreland soils. It is not well suited to soils that have short, irregular slopes, such as the sloping Glenford and Mentor soils.

Cropping sequences that include forage crops are often used in conjunction with contour stripcropping to further reduce the hazard of erosion. The crops grown in the contour strips are rotated between row crops and close-growing forage crops. The most common rotations are based on a 7-year schedule, which generally includes 3 years of row crops and 4 years of meadow.

Grassed waterways are also a common erosion-control practice used in Coshocton County. These can be used independently or in conjunction with other erosion-control measures. They are generally constructed in low areas where runoff tends to collect and flow. Gullies can form in such areas if water flows across a bare surface. Natural drainageways are the best sites for waterways, mainly because a good channel can be established with a minimum of shaping. Waterways should be designed so that they can be crossed with farm machinery.

Water- and sediment-control basins that have underground outlets can be constructed in the drainageways as an alternative to grassed waterways. These basins can be effective in areas that have a high amount of sediment accumulation or where herbicides might damage the sod in the grassed waterway.

Erosion is also a hazard in pastured areas of the county. Many of the permanent pastures are in steep or very steep areas, where runoff is rapid or very rapid. The key to erosion control in pastured areas is maintaining a thick cover of sod. Overgrazing or grazing when the soil is too wet damages this cover and thus increases soil loss. Timely applications of fertilizer and lime will increase the density of the stand and thereby help to control erosion.

Occasionally, cultivated crops are planted in steep areas of pasture that have been cut up with waterways. Special care is needed to prevent excessive erosion when these pastures are planted to row crops. Areas of concentrated waterflow should not be tilled or treated with herbicides. No-till methods of pasture seeding permit reseeding with a minimum of soil loss.

Soil drainage is an important management problem in Coshocton County. A drainage system is the primary management need in areas of nearly level soils, such as the Fitchville, Jimtown, Newark, Orrville, and Sebring soils. It is a secondary need in seepy areas of other soils, such as the sloping Aaron, Coshocton, Guernsey, and Loudon soils. Most plant roots do not grow well without oxygen, and oxygen is not available in soils that are saturated with water.

Figure 10.—Grassed waterways and contour stripcropping help to control erosion on sloping and moderately steep soils in Coshocton County.

Also, wet soils take longer to warm up in the spring, and the wetness is a limitation affecting the use of farm machinery.

Each soil series mapped in the county is assigned a drainage class. For example, Westmoreland soils are well drained, Fitchville soils are somewhat poorly drained, and Melvin soils are poorly drained. Drainage classes are based on the depth to and duration of the seasonal high water table during the wettest part of the year, generally in late winter or early spring. These classes are determined by the water level under natural conditions and do not relate to the adequacy of an installed drainage system.

In well drained soils the water table is at a depth of more than 3 feet most of the time. Natural drainage is adequate for crop production; however, many of the well drained soils are not suited to crops because their slopes are too steep. The most extensive well drained soils in the county are the Brownsville, Hazleton, and Westmoreland soils.

In moderately well drained soils, the water table is commonly between depths of 18 and 36 inches during the wettest part of the year. Natural drainage generally is adequate, but a drainage system is needed for included wetter soils in low spots, seeps, and springs. Coshocton, Glenford, Guernsey, Loudon, and Titusville soils are the most extensive moderately well drained soils in the county.

In somewhat poorly drained soils, the water table is between depths of 12 and 24 inches during the wettest part of the year. A drainage system is needed to increase the yields of most crops. The most extensive somewhat poorly drained soils in Coshocton County are the Fitchville, Newark, and Orrville soils.

In poorly drained and very poorly drained soils, the seasonal high water table is at or above the surface or within a depth of 12 inches during the wettest parts of the year. A drainage system is essential if these soils are to be used as cropland; however, if a drainage system was not installed on or before December 25, 1985, these areas are considered wetlands and provisions of the 1985 Farm Bill will not allow conversion of these areas to cropland. If the soils are drained and planted to row crops or grain crops, the producer cannot receive payments under the Government feed grain program. Examples of poorly drained soils in the county are the Melvin, Sebring, and Zipp soils.

The permeability of most of the soils in the county is sufficient so that the soils can be drained adequately if subsurface drains are properly installed and have good outlets. Some areas need a combination of surface and subsurface drains to adequately remove excess water. Drains have to be more closely spaced in soils that have slow or very slow permeability than in the more permeable soils.

Some crops, such as alfalfa and other small grains, require a better drainage system than is needed for corn and soybeans. Late-planted soybeans can be grown in some areas that are not adequately drained for other crops.

Soil moisture is a critical management concern in areas of cropland if the soils have a high content of sand and gravel, such as in the droughty Chili, Tioga, and Watertown soils. Hazleton and Brownsville soils are droughty but are used primarily as woodland. Soils that are moderately deep to bedrock, such as the Gilpin, Dekalb, and Germano soils, also are droughty. They generally have a low available water capacity. Conserving water is important for maximum crop production. No-till and other forms of conservation tillage that leave crop residue on the surface help to conserve moisture. Most of the droughty soils in the county are well suited to no-till planting.

Besides being droughty, well drained, intensively cropped soils that have a high content of sand and gravel also pose serious environmental threats to *water quality* in the survey area. Nitrates from agricultural fertilizers and from areas of highly concentrated septic tank disposal systems have polluted some ground-water aquifers within the county. Nitrates leach readily through the highly permeable sand and gravel in the Chili, Tioga, and Watertown soils and collect in shallow ground-water aquifers.

Soils formed in residuum that have a contact with fractured bedrock and a high permeability rate, such as the Brownsville, Dekalb, Gilpin, and Hazleton soils, also pose an environmental threat. The effluent from septic tank absorption fields can seep into cracks in the bedrock and then flush virtually untreated into aquifers used for drinking water.

Soil fertility is affected by the content of plant nutrients, lime, and organic matter in the soil. Measures that maintain fertility are needed on all soils in the county that are used as cropland or pasture to ensure the highest productivity. The productivity of a soil depends on natural fertility, past use and management, and the long-term fertility history. These factors vary widely from farm to farm, based on individual farm management techniques, and even on the same soil. For this reason, differences in fertility are not used in mapping soils.

The amount and kind of fertilizer to be applied can differ widely among soil types. Soils that have a high content of clay and of organic matter have a high capacity to store and release plant nutrients. Fitchville, Glenford, and Huntington soils are examples of such soils. Soils that have a low content of clay and of organic matter have a low capacity to store and release plant nutrients. Germano, Rigley, and Watertown are examples of these soils. For this reason, a regular program of soil testing on each separate field is very important because individual soils need different applications to maintain high levels of productivity.

On the steeper and more porous soils in the county, large, one-time applications of lime and fertilizer are likely to be lost through runoff and leaching. For this reason, frequent, light applications of lime and fertilizer are preferable to less frequent, heavier applications.

Soil reaction affects the availability of some plant nutrients. Many of the soils in Coshocton County are acid in the root zone. Phosphate fertilizer applied to acid soils combines with iron and aluminum and becomes unavailable to plants. Fields that will be planted to legumes, which require a pH of 6.5 or higher, should have lime added 6 months prior to seeding.

If the soil is extremely acid, lime should be applied 1 year before the legumes are seeded. High acidity in soils has also been shown to inhibit the activity of earthworms. Earthworms, which incorporate plant residue into the soil, are more active if reaction is near neutral. Their activity results in better soil structure and a higher organic matter content.

Additions of organic matter are very beneficial on most soils in the county. Organic matter is a very good source of nitrogen and improves soil structure and tilth. Improved soil structure results in decreased erosion. Additions of organic matter also help to restore productivity and tilth on eroded and severely eroded soils.

Care should be taken when applying animal manure as an organic matter amendment. Avoid applying manure in areas next to springs, waterways, or ditches where pollution could be a problem. If liquid manure is applied, do not apply excessive amounts that could contaminate tile drainage or cause runoff into water supplies.

Tilth is an important soil property affecting seed germination, infiltration of water, and erosion. Soils that have good tilth are granular, have low compaction, and are porous.

Most of the soils used for crops in Coshocton County have a surface layer of silt loam or sandy loam that is moderate or moderately low in organic matter content. If the soils have a high content of silt in the surface layer, such as in the Fitchville, Glenford, and Mentor soils, the surface crusts after heavy rainfall. This crust, which hardens as it dries, reduces infiltration, increases the runoff rate, and hinders seedling emergence. Leaving crop residue on the surface helps to prevent crusting on these soils.

Corn is the most commonly grown row crop in the county. It is grown year after year on Cidermill, Tioga, and Wheeling soils. Wheat, oats, and alfalfa are the most common close-growing crops. They are used in rotations. Soybeans are less commonly grown but will likely increase in acreage in the future.

Specialty crops, such as vegetables, small fruits, nursery crops, orchards, and Christmas trees, are growing in popularity as a means to subsidize more traditional farm commodities. Deep, well drained soils, such as the Chili and Watertown soils, are especially well suited to many vegetables and small fruits. These soils are also suited to irrigation.

The latest information and suggestions for growing specialty crops can be obtained at the local office of the Cooperative Extension Service or the Natural Resources Conservation Service.

About 25,000 acres in Coshocton County is used for the production of hay. An additional 65,000 acres is used as permanent pasture.

Hay is an important crop in the county. Many farms, especially in the hilly areas, need hay for livestock feed. Hay species differ widely in their soil requirements, particularly in respect to drainage and pH. In addition to the soil requirements, the type of livestock to be fed and the length of time a seeding is expected to last can also influence what goes in the seeding mixture.

Including hay crops in the crop rotation has long been considered an effective erosion-control measure. Once close-growing forages become established, they help to protect the sod from the impact of raindrops. Erosion losses can be substantial in the establishment year if the forages are seeded into a finely tilled seedbed. Using no-till seeding methods on a companion crop of small grain can substantially reduce erosion losses in the establishment year.

Good pasture management involves the management of grazing. Proper grazing use can maximize the production of high-quality forages, promote stand survival, and provide sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and pasture renovation also are important management practices.

Pastures are subject to erosion if they are overgrazed by livestock or when tillage practices are used to reseed moderately steep or steep areas. The key to erosion control in pastured areas is maintaining a thick sod cover. Timely applications of lime and fertilizer will increase density of the stand and thus help to control erosion. In many cases, this is all that is necessary to also increase production. When a change of forage species is desired, no-till seeding permits reseeding with a minimum of soil loss.

Developing a season-long pasture system is the best means of providing adequate quality pastures for grazing animals. Turning grazing animals out on pasture before plants have come out of dormancy in the spring or when the soil is excessively wet can damage the sod and reduce yield. Forage species differ in primary periods of growth and production. Cool-season grasses and legumes are the foundation of pasture systems in Ohio.

The use of grazing management is a means of controlling grazing animals and the grazing pressure (closeness to which a pasture is grazed). A rotation grazing system involves fencing a pasture into several smaller sections called “paddocks” so that only one paddock is grazed at any one time while the remainder of the pasture is “rested.” Forage plants are able to regrow and renew energy reserves.

Intensive rotation grazing systems generally have more than seven paddocks with grazing periods of less than 1 week. The manager controls the height of grasses. When grasses are grazed to a minimum height, the animals are moved to the next paddock. When an abundance of forage is available, the excess should be harvested and stockpiled for feeding during summer dry periods; however, legumes should not be harvested after September 15 to ensure that adequate food reserves are built up in the plant roots to prevent frost heaving of plants during winter.

In a rotation grazing system, an adequate supply of water must be available in each paddock. In some areas seeps can be developed into springs to provide a water supply. Tanks associated with such spring developments can be located so as to provide water to more than one paddock. Water can also be hauled or pumped to the paddocks.

Cropland Limitations and Hazards

The management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in table 5. The main concerns affecting the management of nonirrigated cropland are controlling erosion, removing excess water, minimizing surface crusting and compaction, conserving moisture, and maintaining soil tilth, organic matter content, and fertility.

Generally, a combination of several practices is needed to control erosion. Conservation tillage, stripcropping, field windbreaks, tall grass barriers, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Surface or subsurface drainage or both are used to remove excess water, lower the seasonal high water table, and minimize ponding.

A surface crust forms in tilled areas after hard rains and may inhibit seedling emergence. Regular additions of crop residue, manure, or other organic materials improve soil structure and minimize crusting.

Tilling within the proper range in moisture content minimizes surface compaction.

Conserving moisture consists primarily of reducing the evaporation and runoff rates and increasing the rate of water infiltration. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Measures that are effective in maintaining soil tilth, organic matter content, and fertility include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *flooding, depth to rock, limited rooting depth, ponding, slope,* and *limited organic matter content*.

Flooding.—Flooding can damage winter grain and forage crops. A tillage method that partly covers crop residue and leaves a rough or ridged surface helps to prevent removal of crop residue by floodwater. Tilling and planting should be delayed in the spring until flooding is no longer a hazard.

Depth to rock.—Rooting depth and available moisture may be limited by rock within a depth of 40 inches.

Limited rooting depth.—Reclaimed soils in strip-mined areas have dense subsoil layers that restrict root penetration. The soils are best suited to shallow-rooted crops.

Ponding.—Surface drains help to remove excess surface water and minimize damage from ponding.

Slope.—Where the slope is more than 15 percent, water erosion may be accelerated unless conservation farming practices are applied. The selection of crops and the use of equipment are limited. Cultivation may be restricted.

Limited organic matter content.—Many soils that have a light colored surface layer have a low or moderately low organic matter content and weak or moderate structure. Regularly adding crop residue, manure, and other organic material to the soil maintains or improves the content of organic matter and soil structure.

Additional limitations and hazards are as follows:

Excessive permeability.—This limitation causes deep leaching of nutrients and pesticides. The capacity of the soil to retain moisture for plant use is poor. Crops generally respond better to smaller, more frequent applications of fertilizer and lime than to one large application.

Potential for ground-water pollution.—This is a hazard in soils that have excessive permeability, hard bedrock, a fragipan, or a water table within the profile.

Limited available water capacity, poor or fair tilth, restricted permeability, and *surface crusting.*—These limitations can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Part of original surface layer removed by erosion.—More than 25 percent of the original surface layer has been removed by erosion. In cultivated areas the existing surface layer consists of a mixture of the original surface layer and subsurface or subsoil layer.

Wind erosion.—Sandy windblown material from the soil surface can damage young plants.

Frost heave.—Frost heaving can damage deep-rooted legumes and some small grain crops.

Surface stones.—Stones or boulders on the surface can hinder normal tillage unless they are removed.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification of map units in this survey area is given in table 6.

Pasture and Hayland Interpretations

Soils are assigned to pasture and hayland groups according to their suitability for the production of forage. The soils in each group are similar enough to be suited to the same species of grasses or legumes, have similar limitations and hazards, require similar management, and have similar productivity levels and other responses to management.

Yield estimates are often provided in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

In the section “Interpretive Groups,” the pasture and hayland suitability group symbol is listed for each soil. Soils assigned the same suitability group symbol require the same general management and have about the same potential productivity. The pasture and hayland suitability groups are based on soil characteristics and limitations.

Table 8 gives the potential yields per acre of some common pasture and hay mixtures. It also gives a pasture and hayland suitability group for each map unit. A brief discussion of each pasture and hayland suitability group follows:

The soils in *group A* have few limitations affecting the management and growth of climatically adapted plants. Those in *group A-1* are deep or very deep and are well drained. They have a surface layer of loam, sandy loam, or silt loam. The available water capacity is moderate. Plants on these soils respond favorably to additions of lime. Frequent applications may be needed to maintain an adequate pH level. A low pH level in the subsoil shortens the life of some deep-rooted legumes in the stand. Slopes range from 0 to 15 percent.

The soils in *group A-2* are deep or very deep and are well drained or moderately well drained. They have a surface layer of sandy loam, loam, or silt loam. The available water capacity is moderate. Plants on these soils respond favorably to additions of lime. Frequent applications may be needed to maintain an adequate pH level. The low pH level in the subsoil shortens the life of some deep-rooted legumes in the stand. The slope limits the mechanical application of lime and fertilizer. It also limits clipping, mowing, and spraying for weed control. Erosion is a hazard if the pasture is overgrazed or cultivated for reseeding. These soils are suited to no-till reseeding. Slopes range from 15 to 25 percent.

The soils in *group A-3* are deep or very deep and are well drained or moderately well drained. They have a surface layer of loam, sandy loam, or silt loam. The available water capacity is moderate. These soils generally are not suited to pasture or hay, but some grass pasture is produced. Slopes range from 25 to 35 percent.

The soils in *group A-4* are deep and well drained or moderately well drained. They have a surface layer of silt loam or sandy loam. The available water capacity is moderate. Slopes range from 6 to 25 percent. Surface stones make pasture improvement practices very difficult.

The soils in *group A-5* are very deep and well drained or moderately well drained. They are on flood plains and are subject to frequent, occasional, or rare flooding. The flooding limits the use of these soils for pasture during periods of stream overflow, and sediment lowers the quality of the forage. These soils have a surface layer of silt loam, loam, fine sandy loam, or sandy loam. The available water capacity is high or moderate. Slopes are 0 to 2 percent.

The soils in *group A-6* are deep or very deep and are well drained or moderately well drained. They are subject to frost action. Legume-grass mixtures are less likely to be damaged by frost heaving than pure stands of legumes. These soils have a surface layer of silt loam. The available water capacity is moderate or high. Plants on these soils respond favorably to additions of lime and fertilizer. Frequent applications may be needed to maintain adequate pH and nutrient levels. These soils are suited to no-till reseeding. Slopes range from 0 to 15 percent.

The soils in *group B* are limited by droughtiness. Those in *group B-1* are deep or very deep and are well drained. They have a surface layer of channery silt loam, channery sandy loam, or sandy loam. The available water capacity is low. These droughty soils are suited to tall grasses, such as tall fescue, orchardgrass, timothy, and bromegrass. Plants on these soils respond favorably to additions of lime. Frequent applications may be needed to maintain an adequate pH level. A low pH level in the subsoil shortens the life of some deep-rooted legumes in the stand. Slopes range from 0 to 25 percent.

The soils in *group B-2* are deep or very deep and are well drained. They have a surface layer of channery silt loam or channery sandy loam. The available water capacity is low. These soils generally are not suited to pasture or hay. Slopes range from 25 to 40 percent.

The soils in *group B-4* are very deep and well drained. They have been reclaimed after mining. They have a surface layer of loam. The available water capacity is low. They have a high content of coarse fragments in the substratum. The depth of the root zone varies. Slopes range from 0 to 25 percent.

The soils in *group C* are wet because of a seasonal high water table. Those in *group C-1* are very deep and somewhat poorly drained. They have a surface layer of loam or silt loam. The available water capacity is high or moderate. Frost action may damage legumes. Including grasses in seeding mixtures helps to prevent the damage caused by frost heaving. The seasonal high water table limits the rooting depth of forage plants. Shallow-rooted species grow best on these soils. Subsurface drains are used to lower the seasonal high water table. Plants on these soils respond favorably to addition of lime. Frequent applications may be needed to maintain an adequate pH level. The low pH in the subsoil shortens the life of some deep-rooted legumes in the stand. Slopes range from 0 to 6 percent.

The soils in *group C-2* are very deep and are somewhat poorly drained or poorly drained. They have a surface layer of silt loam. The available water capacity is moderate or high. The effectiveness of subsurface drains generally is limited by the restricted permeability in the subsoil or the landscape position of the soils. Slopes range from 0 to 2 percent.

The soils in *group C-3* are very deep and are somewhat poorly drained, poorly drained, or very poorly drained. They are on flood plains and are subject to frequent or occasional flooding. The flooding limits the use of these soils for pasture during periods of stream overflow, and sediment lowers the quality of the forage. These soils have a surface layer of silt loam or silty clay loam. The available water capacity is moderate or high. Frost action may damage legumes. Including grasses in seeding mixtures helps to prevent the damage caused by frost heaving. The seasonal high water table limits the rooting depth of forage plants. Subsurface drains are used to lower the seasonal high water table. The effectiveness of subsurface drainage is limited by the landscape position of the soils. Slopes range from 0 to 2 percent.

The soils in *group E* have been mined previously. They have an effective rooting depth of less than 20 inches.

The soils in *group E-2* are very deep and well drained. They have a surface layer of loam. The available water capacity is low. These soils have a high content of coarse fragments in the substratum. Slopes range from 25 to 35 percent.

The soils in *group E-3* are very deep and well drained. They have a surface layer of channery loam. The available water capacity is low. These soils have a high content of coarse fragments in the substratum. Slopes range from 0 to 25 percent.

The soils in *group F* have a restricted root zone. The root growth of climatically adapted plants is limited to a depth of 20 to 40 inches. Forage crops that do not have a taproot should be selected for planting in areas of these soils.

The soils in *group F-1* are moderately deep and well drained. They have a surface layer of channery sandy loam, sandy loam, or silt loam. The available water capacity is very low or low. These droughty soils are suited to tall grasses, such as tall fescue, orchardgrass, bromegrass, and timothy. Plants on these soils respond favorably to addition of lime. Frequent applications may be needed to maintain an adequate pH level. The low pH in the subsoil of some soils can shorten the life of some deep-rooted legumes in a stand. Slopes range from 2 to 25 percent.

The soils in *group F-3* are well drained or moderately well drained. They are moderately deep to a fragipan. They have a surface layer of silt loam. The available water capacity is moderate in the root zone. Slopes range from 2 to 25 percent.

The soils in *group F-5* are very deep and well drained. They have a surface layer of silt loam. The available water capacity is high. The clayey subsoil restricts the rooting depth. Slopes range from 2 to 15 percent.

The soils in *group F-6* are very deep and well drained. They have a surface layer of silt loam. The available water capacity is high. The clayey subsoil limits the rooting depth. Slopes range from 15 to 35 percent.

The soils in *group H* are too steep to be used for forage production or have been mined previously. The soils in the mined areas have characteristics that prohibit their use as pasture.

The soils in *group H-1* are deep or moderately deep and are well drained. Slope dominantly ranges from 25 to 70 percent. These soils generally are unsuited to pasture and hay.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture (Federal Register 1978). It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 45,500 acres in the survey area, or nearly 13 percent of the total acreage, meets the soil requirements for prime farmland. An additional 25,100 acres, or about 7 percent of the total acreage, would meet the requirements for prime farmland if the soils were drained. Fairly large areas of the prime farmland are on bottom land and terraces in the county. Other areas of prime farmland are on gently sloping uplands. About 44 percent of the cropland in the county is prime farmland. About 78 percent of the prime farmland in the county is used as cropland (USDA 1989).

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 9. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Use and Management of Lands Surface Mined for Coal

By 1990, about 35,000 acres of land in Coshocton County had been affected by surface mining. About half of this land was mined prior to the 1972 Ohio Reclamation law. It generally consists of graded and ungraded ridges and spoil piles where no soil material has been replaced. The soils in these areas are mapped as Bethesda soils. Because of the high content of coarse fragments and the low available water capacity, this land is generally unsuited to cropland and poorly suited to pasture. It is used mostly as woodland and habitat for wildlife.

The legislation enacted in 1972 required the restoration of all land mined after 1972. The land must be restored to the approximate original contour and blanketed with topsoil and subsoil from natural soils. Bethesda loam, 0 to 8 percent slopes, was reclaimed by this technique. Reclaimed soils make up about 12,000 acres in Coshocton County. They are better suited to agricultural production than unreclaimed soils, but they still have limitations that need to be overcome.

The current law requires that soils identified as prime farmland be replaced in natural sequence to a depth of as much as 48 inches following mining. Farmerstown soils were reclaimed in this manner. Most soils in surface-mined areas do not meet the requirements for prime farmland. As a result, most of the mined land is being reclaimed with a minimum of 6 inches of soil material overlying the spoil.

Soil properties must be considered in managing these soils. The organic matter content is considerably lower in mined soils than in natural soils. A high bulk density is common in both the replaced soil material and the underlying graded spoil. The compaction is a result of the use of heavy machinery, especially wheeled reclamation equipment; excessive handling of topsoil material when it is stockpiled and spread; mining and reclamation activities performed under unfavorable moisture conditions; and insufficient time for soil-forming processes to decrease the bulk density. Handling soil material when it is too wet is probably the main cause of excessive compaction. The high bulk density reduces the available water capacity and retards plant growth. As a result, crop yields are reduced.

Typically, the content of rock fragments in mine spoil ranges from 35 to 60 percent, compared to 0 to 15 percent in the surface layer of most soils in the county. The rock fragments reduce the effective root zone and the available water capacity in formerly mined soils. Roots tend to concentrate in the profile where soil and rock fragments adjoin. Few roots penetrate the compact, massive spoil material.

Planting suitable forage species increases the organic matter content, improves soil structure, minimizes compaction, and increases the water infiltration rate, pore space, and root growth in formerly mined soils. Forage species are better soil-building crops than row crops. They also are more effective in reducing the susceptibility to runoff and erosion. Thin stands should be reseeded. Companion crops and conservation tillage seeding methods help to control erosion.

Formerly mined soils generally are unsuited to grazing in winter when they are wet. Winter grazing can result in compaction and damage to plants and can increase the hazard of erosion. Frequent, light applications of fertilizer are better suited to these soils than larger applications because of the loss of plant nutrients through runoff and the concentration of roots in the upper few inches of the soils.

Reclamation practices that improve the suitability of formerly mined soils for agricultural use are as follows:

1. *Blanketing the spoil with a thick layer of natural soil material to increase the available water capacity and the effective rooting depth.* Each foot of replaced soil material increases the available water capacity by about 1 inch. Moisture retention studies show that most unreclaimed surface mine spoil, such as Bethesda channery loam, 0 to 8 percent slopes, retains about one-fourth as much water as a natural soil, such as Coshocton silt loam, 2 to 6 percent slopes.

2. *Keeping the surface soil and subsoil separate and then replacing them in their natural sequence.*

3. *Minimizing soil compaction.* The degree of soil compaction is influenced largely by soil texture, moisture conditions, organic matter content, and soil structure.

Stockpiling of soil material contributes to soil compaction. It can be minimized by spreading the freshly removed soil from one cut onto the graded spoil from the previous cut without stockpiling. Only the soil from the first cut needs to be stockpiled until it is spread on the very last cut.

Spoil should not be graded when it is wet, and soil material should not be handled when it is wet. Grading the spoil and handling the soil material under wet conditions destroy soil structure and result in the formation of an impermeable zone with each layer that is replaced.

Final grading should be held to a minimum. The spoil and the soil material that is replaced should be graded only enough to ensure that slopes are smooth and the soil material is of an even thickness.

The proper equipment should be used, and reclamation activities should be carefully planned. Scraper pans generally have the desirable depth control for soil removal. Wheeled equipment, however, causes much more compaction than tracked equipment. The traffic pattern of wheeled equipment should be carefully controlled in order to minimize compaction. In most areas replacing the soil material beginning at the farthest point from the stockpile or soil removal site is necessary.

Nonessential traffic should be kept out of reclaimed areas. Limiting the traffic to designated roadways that have been built across the slope minimizes the extent of the compaction. When these roadways are no longer needed, they can be reclaimed by such special practices as subsoiling.

Deep tillage practices, such as subsoiling and chisel plowing, loosen up compacted soil. They break up the compacted layers and thus increase the movement of air and water. In reclaimed areas of prime farmland, both the replaced subsoil layer and topsoil layer may need deep tillage in separate operations during reclamation to avoid mixing the two layers. Tables 20 and 21 list some properties of soils that influence their behavior during mining and reclamation in Coshocton County.

4. *Properly designing and constructing water-control systems that help to control runoff and erosion.* Diversions reduce the length of the slope and thus reduce the velocity of runoff and the amount of erosion. They have been used successfully on slopes of as much as 30 percent in reclaimed areas.

A series of small, properly designed sediment-control structures in or immediately adjacent to the surface-mined area is generally more practical than large impoundments away from the site. The smaller, onsite sediment-control structures can be removed after reclamation has been completed, and the sediment and the embankment material can be spread over the immediate area.

A mulch of hay or straw that is crimped into the soil by straight blade disk helps to control erosion on short slopes. About 2 tons of mulch per acre is generally recommended; however, a higher rate is needed on steep slopes if erosion control is the primary objective.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others 1979; U.S. Army Corps of Engineers 1987; National Research Council 1995; Tiner 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in the “Soil Survey Manual” (Soil Survey Division Staff 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt, Whited, and Pringle 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council 1995; Hurt, Whited, and Pringle 1996).

Mg	Melvin silt loam, frequently flooded
Mh	Melvin silt loam, ponded
Nf	Newark silt loam, frequently flooded
Se	Sebring silt loam
Zp	Zipp silty clay loam, frequently flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

AaC2	Aaron silt loam, 6 to 15 percent slopes, eroded
BhB	Bethesda channery loam, 0 to 8 percent slopes
BhD	Bethesda channery loam, 8 to 25 percent slopes
BhF	Bethesda channery loam, 25 to 70 percent slopes
CdA	Caneadea silt loam, 0 to 2 percent slopes
CkC	Clarksburg silt loam, 6 to 15 percent slopes
CkD	Clarksburg silt loam, 15 to 25 percent slopes
CoC2	Coshocton silt loam, 6 to 15 percent slopes, eroded
CoD	Coshocton silt loam, 15 to 25 percent slopes
CsD	Coshocton-Westmoreland complex, 15 to 25 percent slopes
CsE	Coshocton-Westmoreland complex, 25 to 35 percent slopes
EuA	Euclid silt loam, occasionally flooded
FhA	Fitchville silt loam, 0 to 2 percent slopes
FhB	Fitchville silt loam, 2 to 6 percent slopes
GuC	Guernsey silt loam, 6 to 15 percent slopes
GuD	Guernsey silt loam, 15 to 25 percent slopes
JmA	Jimtown loam, 0 to 2 percent slopes
KeC	Keene silt loam, 6 to 15 percent slopes
LrB	Loudon silt loam, 2 to 6 percent slopes
LrC	Loudon silt loam, 6 to 15 percent slopes
Ne	Newark silt loam, occasionally flooded
Or	Orrville silt loam, occasionally flooded
Tm	Tioga fine sandy loam, frequently flooded
TsB	Titusville silt loam, 2 to 6 percent slopes
TsC	Titusville silt loam, 6 to 15 percent slopes

Woodland

William Hanosky, service forester, Ohio Department of Natural Resources, Division of Forestry, helped prepare this section.

About 152,200 acres, or 42 percent of the total acreage, in the county is wooded (USDA 1989). Most of this woodland is privately owned, with an average woodland ownership of 30 acres. The total acreage of woodland in the county has probably reached its peak. In the future the acreage of woodland is expected to either remain stable or to decrease slightly.

The wooded areas mainly support mixed hardwoods. The major forest type is oak-hickory; however, the dominant tree species found on a particular tract of land will vary widely because of soil conditions, slope, aspect, and past land use. Although oaks and hickory are dominant in many of the woodlands, other species such as yellow-poplar, red maple, red elm, beech, or sugar maple, may be dominant locally.

Much of the woodland in the county shows the results of poor management. Cattle have grazed much of the woodland, and a considerable acreage is still being used as wooded pasture. High grading, a method of selective harvest cutting that involves harvesting only the best trees and leaving the less valuable trees in the woods, is a common practice that has resulted in reduced quality of trees in some woodlots. Wild grapevines are a problem in many of the wooded areas and need to be controlled.

Tree planting is not a major forest management activity in the county. If properly managed most hardwood forests in this area will reseed themselves naturally, and planting trees in existing woods is generally not recommended. Most of the trees planted in the county are on oilfield sites. White pine is generally the recommended species to plant in these areas.

The productivity of woodland varies greatly depending on the soil properties. The properties influencing tree growth are almost the same as those influencing the growth of annual crops and pasture plants. The major difference is that tree roots penetrate the soil to a greater depth, especially around rock fragments in the lower part of the soil profile. The direction of exposure, or aspect, and the position of the soil on the landscape are important in evaluating a soil for woodland. Other important properties are the percent of slope, the degree of past erosion, and the levels of acidity and fertility.

Aspect is the compass direction toward which the slope faces. Trees grow better on north and east aspects because of less exposure to the prevailing winds and the sun. North and east aspects tend to have more soil moisture and lower soil temperatures than south and west aspects.

The position of the soil on the landscape is important in determining the amount of moisture available for tree growth. Soil moisture increases as elevation decreases. Also, the soils are generally deeper on the lower part of slopes than on the upper part.

Woodland Management and Productivity

Table 10 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *R* indicates steep slopes; *X*, stoniness or rockiness; *W*, excess water in or on the soil; *T*, toxic substances in the soil; *D*, restricted rooting depth; *C*, clay in the upper part of the soil; *S*, sandy texture; *F*, a high content of rock fragments in the soil; and *N*, snowpack. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, F, and N.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed also are subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *productivity class*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *productivity class*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic meters per hectare per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Trees to plant are those that are suitable for commercial wood production.

Woodland Harvesting and Regeneration Activities

Table 11 gives the degree and kinds of limitations that affect the operation of equipment used in tree harvesting and in the regeneration of woodland. Ratings are given for haul roads, log landings, skid trails and logging areas, and site preparation and planting. The limitations are considered *slight* if the physical site characteristics impose little or no limitations on the kind of equipment or the time of operation; *moderate* if the site characteristics impose some limitations on the kind of equipment or the time of operation, or both; and *severe* if the site characteristics are such that special equipment or special logging techniques are needed or the time of efficient operation is very limited.

Haul roads are access roads leading from log landings to primary or surfaced roads. Generally, these are unpaved roads that have not been graveled. The ratings are based on soil properties, site features, and observed performance of the soils. Wetness, rockiness, depth to hard bedrock, stoniness, soil strength, slope, soil texture, and flooding should be considered in selecting routes for haul roads. Wetness and flooding affect the duration of use. Rock outcrops, stones, and boulders, which are difficult to move, hinder the construction when cutting and filling are needed. Soil strength, as inferred from the AASHTO group index and AASHTO group, is a measure of the traffic-supporting capacity of the soil. Slope affects the use of equipment and the cutting and filling requirements of the site.

Log landings are areas where logs are assembled for transportation. The best sites for landings require little or no surface preparation, which consists of cutting or filling. Considerable soil compaction can be expected in these areas. The ratings are based on the soil properties, site features, and the observed performance of the soils. Wetness, flooding, rockiness, stoniness, slope, depth to hard bedrock, soil strength, soil texture, and content of rock fragments should be considered in selecting sites for log landings. Wetness and flooding affect the duration of use. Rock outcrops, stones, and boulders, which are difficult to move, limit the use of equipment and affect the configuration and location of landings. Depth to hard bedrock is a problem where cutting and filling are required. Slope affects the use of equipment and the cutting and filling requirements of the site. Soil texture affects trafficability. Soil strength, as inferred from the AASHTO group index and AASHTO group, is a measure of the traffic-supporting capacity of the soil.

Skid trails and *logging areas* include the areas from the stumps to the log landings that are partially or completely logged with rubber-tired equipment. Other types of log-moving equipment can sometimes be used to minimize or overcome the site limitations. The ratings are based on soil properties, site features, and the observed performance of the soils. Wetness, flooding, rockiness, stoniness, texture, and slope affect the use of logging equipment. Deferring logging activities during periods when the soil is saturated at or near the surface helps to minimize environmental damage. Special equipment is usually required during these periods. Soils that are subject to flooding of long duration should not be logged because logging activities can damage the equipment or the environment, or both. Surface stones, boulders, and rock outcrops limit the safe and efficient use of equipment. As slope gradients increase, traction problems worsen. Traction is a problem on clayey soils during wet periods and on sandy soils during dry periods. Unless frozen, organic soils are severely damaged by the use of rubber-tired or tracked equipment.

Site preparation and *planting* are mechanized operations. The ratings are based on the limitations affecting the efficient use of equipment and on the damage that can result on the site when equipment is used. It is assumed that the operating techniques used do not displace or remove topsoil from the site or create channels in which storm runoff can concentrate. Wetness, flooding, rockiness, stoniness, the content of rock fragments, depth to bedrock, texture, and slope affect the use of site preparation and planting equipment. Deferring site preparation and planting during periods when the soil is saturated at or near the surface helps to minimize environmental damage. Special equipment is usually required during these periods. Equipment should not be used on soils that are subject to flooding of long duration. Operating equipment on these soils can result in equipment damage or environmental damage, or both. Surface stones, boulders, and rock outcrops limit the safe and efficient use of equipment. Rock fragments and hard bedrock at very shallow depths can interfere with the equipment used in site preparation and planting. As slope gradients increase, traction problems worsen. Traction is a problem on clayey soils during wet periods and on sandy soils during dry periods. Organic soils can be severely damaged if rubber-tired or tracked equipment is operated when the soils are not frozen.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 12 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

Coshocton County is a scenic county that has a number of outdoor recreational areas. Some of these areas are privately owned or owned by service organizations, churches, or sportsmen’s clubs. Other areas are owned by governmental agencies.

The Muskingum Watershed Conservancy District owns or controls land around the Mohawk Dam and Wills Creek Dam. This land is used for hunting, fishing, picnicking, and other activities. The State-owned Mohican River and Woodbury Wildlife Areas provide opportunities for public hunting and fishing. The Coshocton City-County Park District also maintains recreational areas.

The rivers in the county provide recreation for canoeists and fishermen. Some people who reside outside of the county have constructed summer residences in the county. There are several golf courses located throughout the county.

The soils in the county vary greatly. Many soils are moderately well suited to recreational uses. Soils on bottom lands are subject to flooding, and some of the soils tend to be excessively wet. The soils best suited to recreational uses are on gently sloping uplands or on nearly level or gently sloping terraces; however, there is only a small amount of this type of land in the county.

Because most of the land is more sloping, certain types of recreational development are affected. Measures that help to control erosion and overcome wetness are needed both in intensive recreational areas, such as playgrounds and developed campsites, and in extensive recreational areas, such as trails and primitive campsites. They include access roads, critical area plantings, diversions, waterways, subsurface drains, and protection of heavily used areas. More information about these conservation measures can be obtained from the local office of the Natural Resources Conservation Service.

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these.

The information in table 13 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 16 and interpretations for dwellings without basements and for local roads and streets in table 15.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Coshocton County has a wide variety of wildlife. Some birds inhabiting the county are pheasant, turkey, mourning dove, ruffed grouse, quail, hawks, crows, and various songbirds. Some of the mammals are rabbits, squirrels, beaver, opossum, muskrat, woodchuck, raccoon, skunk, fox, and white-tailed deer. This wide variety of wildlife is supported by diverse habitats, including cropland, openland, woodland, wetland, and areas of open water.

Some areas of wetland are scattered throughout the county. The largest of these wetland areas are along Killbuck Creek and Wills Creek. Melvin, Orrville, and Newark soils commonly are in these areas.

Many acres of unreclaimed strip-mined land, which is classified as Bethesda soils in this survey area, are used primarily for wildlife habitat. The main management concern in areas of these soils is habitat improvement. The soils are droughty and extremely acid, have poor tilth, contain many rock fragments, and have restricted rooting depth. Wildlife habitat can be improved by establishing a wider variety of plants.

If treated properly, most of the soils in Coshocton County are well suited to the plants used as wildlife food and cover. Nesting areas are needed. Planting grasses and shrubs in hedgerows and fence rows helps to create these areas. Planting nut-producing trees and leaving hollow den trees improve woodlots as habitat for wildlife. Cropland is an invaluable source of food for wildlife if it is managed properly.

Ponds can be constructed in some areas. Landscaping the area around a newly constructed pond helps to provide habitat for wildlife. Additional information about improving wildlife habitat can be obtained from the Ohio State University Extension; the Ohio Department of Natural Resources, Division of Wildlife; and the local office of the Natural Resources Conservation Service.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are goldenrod, beggarweed, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, maple, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, and blackberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, blackhaw, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, material for reconstruction of strip-mined areas, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

Some areas in the county are subject to controlled flooding. These areas are the flood pools behind structures used for flood control. The flood pools are shown on the detailed soil maps. The Mohawk Dam flood pool is located in Jefferson, New Castle, and Tiverton Townships. The Wills Creek Dam flood pool is located in Franklin, Lafayette, Linton, and Oxford Townships. Local flooding occurs when water is impounded in the flood pools during periods of heavy rainfall and runoff. Generally, this flooding occurs early in spring, but it can occur during other periods. If areas within these flood pools are planned for any use, the hazard of flooding should be considered.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 15 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 16 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 17 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Soil Material for Reconstruction of Strip-Mined Areas

Table 18 gives information about the soils as a source of material for reclaiming areas drastically disturbed by surface mining.

The surface layer, subsoil, and substratum of the soils are rated *good, fair*, or *poor*, according to their erodibility and stability as a medium for plant growth. The ratings only apply to that part of the soil within a depth of 5 feet.

The interpretations in table 18 cannot be used for quarry, pit, or surface mine operations that require an offsite source of soil reconstruction material. The interpretations for daily cover for landfill in table 16 should be used to evaluate the material used for restoration following these operations.

A rating of *good* in table 18 means vegetation is relatively easy to establish and maintain, the surface is stable and resists erosion, and the reconstructed soil has good potential productivity. Material rated *fair* can be vegetated and stabilized by modifying one or more properties. Topdressing with better material or application of soil amendments may be necessary for satisfactory performance. Material rated *poor* has such severe problems that revegetation and stabilization are very difficult and costly. Topdressing with better material is necessary to establish and maintain vegetation.

Soil texture and coarse fragments influence soil structure and consistence, the water intake rate, runoff, fertility, workability, and trafficability. They also influence available water capacity and erodibility by wind and water. Loamy and silty soils that are free of coarse fragments are the best reconstruction material. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are droughty and subject to wind erosion.

Rock fragments influence the ease of excavation, stockpiling, respreading, and suitability for final use of the land. A certain amount of rock fragments can be tolerated depending upon the size of rock fragments and the intended use of the reclaimed area. If the size of rock fragments exceeds 10 inches, the problems are more severe.

Vegetation is difficult to establish on soils that are extremely acid or alkaline. Materials that are extremely acid or have the potential of becoming extremely acid upon oxidation are difficult and expensive to vegetate. They also contribute to poor water quality, both in runoff and ground water. Materials high in pyrite and marcasite, without offsetting bases, have high potential acidity. Laboratory tests may be needed to properly identify those materials.

Excessive amounts of substances that restrict plant growth, such as sodium, salt, sulfur, copper, and nickel, create problems in establishing vegetation. In sparsely vegetated areas, the soils are subject to erosion and the surface soil has not been stabilized. Other substances, such as selenium, boron, and arsenic, get into the food chain and are toxic to animals that eat the vegetation. Of all these substances, only sodium and salt were considered in the ratings. Soil layers relatively high in toxic substances are rated poor. Laboratory tests are needed to properly identify toxic substances.

The interpretations in table 18 do not cover all the soil features required in planning soil reconstruction. For example, slope, thickness of material, ease of excavation, the potential for slippage, and the moisture regime can influence a reconstruction project. Slope of the original soil may influence the method of stripping and stockpiling of reconstruction material, but it may have little effect on the final contour of the reconstructed landform; therefore, it has little influence on the stability and productivity of the reconstructed soil, so slope is not a criterion in making the interpretations.

The thickness of material suitable for reconstruction and the ease of excavation are important criteria in planning soil reconstruction operations; however, they are so dependent on the method of mining operations that they were not used as criteria in developing the interpretations. The potential for slippage is related to soil texture, slope, differential permeability between layers, rainfall, and other factors that were not considered.

The soil moisture regime, climate, and weather influence the kind of vegetation to plant and the rate of revegetative growth. They were not used as criteria because the relative rating does not change with variable moisture regimes; that is, the best soil in a moist environment is the best soil in a dry environment. Furthermore, the soil may be irrigated to establish vegetation.

Water Management

Table 19 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

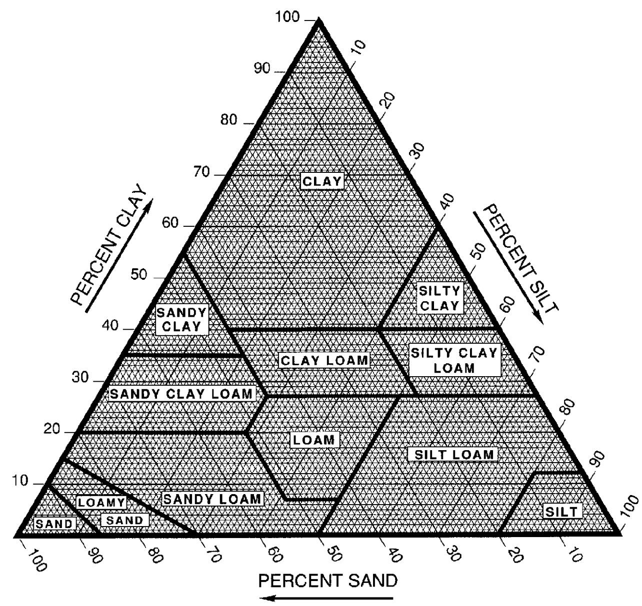

Figure 11.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 20 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 11). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 1986).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Tables 21 and 22 show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In these tables, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after the soil is dried at 105 degrees C. In table 21, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect retention of water and depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, 6 to 9 percent; and *very high*, more than 9 percent.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

In table 22, *cation-exchange capacity* is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Soil and Water Features

Tables 23 and 24 give estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

In table 23, *hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are depth to the seasonal high water table, the kind of water table, and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. “More than 6.0” indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. *Ponding duration* classes are the same as those for flooding. *Maximum ponding depth* refers to the depth of the water above the surface of the soil.

In table 24, *depth to bedrock* is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Physical and Chemical Analyses of Selected Soils

Samples of some of the soils in Coshocton County were analyzed by the Soil Characterization Laboratory, Department of Agronomy, The Ohio State University, Columbus, Ohio. The physical and chemical data obtained from the samples include those on particle-size distribution, reaction, organic matter content, calcium carbonate equivalent, and extractable cations.

These data were used in the classification and correlation of the soils and in evaluating their behavior under various land uses. Two pedons were selected as representative of their respective series and are described in the section “Soil Series and Their Morphology.” These series and their laboratory identification numbers are Coshocton (CS-5) and Keene (CS-11).

In addition to the data for Coshocton County, laboratory data are also available for nearby counties that have many of the same soils. All of these data are on file at the School of Natural Resources, The Ohio State University, Columbus, Ohio; the Department of Natural Resources, Division of Soil and Water Conservation, Columbus, Ohio; and the Natural Resources Conservation Service, State Office, Columbus, Ohio.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1975 and 1990). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 25 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff 1990). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Aaron Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Shale residuum
Landform: Hills
Position on the landform: Summits, shoulders

Slope range: 2 to 15 percent
Commonly adjacent soils: Coshocton, Guernsey, Rigley

Taxonomic class: Fine, mixed, mesic Aquic Hapludalfs

Typical Pedon

Aaron silt loam, 6 to 15 percent slopes, eroded; about 1 mile east of New Guilford, in Perry Township; 2,300 feet north and 900 feet west of the southeast corner of sec. 8, T. 5 N., R. 9 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; streaks and pockets of yellowish brown (10YR 5/6) subsoil material; weak medium subangular blocky structure parting to weak fine granular; friable; few fine roots; slightly acid; abrupt wavy boundary.

Bt1—5 to 8 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common faint yellowish brown (10YR 5/6) clay films on faces of peds; few fine roots; strongly acid; clear wavy boundary.

Bt2—8 to 13 inches; yellowish brown (10YR 5/6) silty clay; common fine distinct grayish brown (10YR 5/2) and few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common faint yellowish brown (10YR 5/6) clay films on faces of peds; few fine roots; strongly acid; clear wavy boundary.

Bt3—13 to 26 inches; yellowish brown (10YR 5/6) clay; many fine distinct grayish brown (10YR 5/2) and many fine distinct strong brown (7.5YR 5/6) mottles; moderate medium prismatic structure parting to moderate medium angular blocky; firm; many distinct brown (7.5YR 5/2) clay films on faces of peds; few fine roots; strongly acid; clear wavy boundary.

Bt4—26 to 36 inches; yellowish brown (10YR 5/6) clay; many fine distinct grayish brown (10YR 5/2) and many fine distinct strong brown (7.5YR 5/6) mottles; moderate medium prismatic structure; firm; common distinct brown (7.5YR 5/2) clay films on faces of peds; few fine roots; strongly acid; clear wavy boundary.

BC—36 to 45 inches; yellowish brown (10YR 5/6) clay; many fine distinct grayish brown (10YR 5/2) mottles; weak medium prismatic structure; firm; strongly acid; clear wavy boundary.

C—45 to 53 inches; light brownish gray (10YR 6/2) clay; many fine distinct yellowish brown (10YR 5/6) mottles; massive; firm; strongly acid; gradual wavy boundary.

Cr—53 to 58 inches; light olive brown (2.5Y 5/4) interbedded shale.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: 40 to 60 inches
Content of rock fragments: Ap horizon—0 to 14 percent; Bt horizon—0 to 14 percent; C horizon—0 to 35 percent
Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 or 3
Texture—silt loam
Bt horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 4 to 8
Texture—silty clay, clay, silty clay loam
BC and C horizons:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 8
Texture—clay, silty clay, or the channery analogs of those textures

Alford Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loess
Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 2 to 15 percent
Commonly adjacent soils: Chili, Rigley, Westmoreland

Taxonomic class: Fine-silty, mixed, mesic Ultic Hapludalfs

Typical Pedon

Alford silt loam, 2 to 6 percent slopes; about 2.2 miles southwest of Conesville, in Virginia Township; about 1,200 feet east of the junction of County Road 75 and Township Road 289 along County Road 75, then 125 feet north, T. 4 N., R. 7 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

BE—10 to 14 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; many fine roots; moderately acid; clear smooth boundary.

Bt1—14 to 27 inches; yellowish brown (10YR 5/6) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; many faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; strongly acid; clear smooth boundary.

Bt2—27 to 38 inches; yellowish brown (10YR 5/6) silt loam; few medium faint yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; many faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; few distinct pale brown (10YR 6/3) silt coatings; strongly acid; clear smooth boundary.

BC—38 to 62 inches; yellowish brown (10YR 5/6) silt loam; few medium faint yellowish brown (10YR 5/8) and few medium distinct pale brown (10YR 6/3) mottles; weak coarse subangular blocky structure; friable; moderately acid; clear smooth boundary.

C—62 to 80 inches; yellowish brown (10YR 5/6) silt loam; few medium faint yellowish brown (10YR 5/8) and few medium distinct pale brown (10YR 6/3) mottles; massive; friable; moderately acid.

Range in Characteristics

Thickness of the solum: 60 to 80 inches

Ap horizon:

Color—hue of 10YR, value of 4, chroma of 2 or 3

Texture—silt loam

BE, Bt, and BC horizons:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6

Texture—silt loam, silty clay loam

C horizon:

Color—hue of 10YR, value of 4 or 5, chroma of 4 to 6

Texture—silt loam

Bethesda Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Parent material: Mine spoil

Landform: Surface-mined areas in the uplands

Position on the landform: Summits, backslopes, footslopes

Slope range: 0 to 70 percent

Commonly adjacent soils: Coshocton, Hazleton, Westmoreland

Taxonomic class: Loamy-skeletal, mixed, acid, mesic Typic Udorthents

Typical Pedon

Bethesda channery loam, 25 to 70 percent slopes; about 5 miles south of Coshocton, in Franklin Township; 1,900 feet north and 350 feet east of the southwest corner of sec. 11, T. 4 N., R. 6 W.

A—0 to 3 inches; brown (10YR 4/3) channery loam, pale brown (10YR 6/3) dry; moderate fine and medium granular structure; friable; many fine and medium roots; 20 percent channers; strongly acid; clear smooth boundary.

C1—3 to 14 inches; yellowish brown (10YR 5/4) very channery loam; massive; friable; common fine and medium roots; 35 percent channers; strongly acid; gradual smooth boundary.

C2—14 to 27 inches; yellowish brown (10YR 5/4) very channery loam; massive; friable; few fine and medium roots; 55 percent channers; very strongly acid; gradual smooth boundary.

C3—27 to 40 inches; yellowish brown (10YR 5/4) very channery loam; massive; friable; few fine and medium roots; 45 percent channers; very strongly acid; gradual smooth boundary.

C4—40 to 80 inches; yellowish brown (10YR 5/4) very channery loam; massive; friable; 60 percent channers; very strongly acid; gradual smooth boundary.

Range in Characteristics

Thickness of the reconstructed soil in reclaimed areas: 4 to 10 inches

Content of rock fragments: A or Ap horizon—5 to 40 percent; C horizon—35 to 80 percent

A or Ap horizon:

Color—hue of 7.5YR to 2.5Y or is neutral; value of 3 to 6; chroma of 0 to 8

Texture—loam, channery loam

C horizon:

Color—hue of 7.5YR to 2.5Y or is neutral; value of 3 to 6; chroma of 0 to 8

Texture—the very channery or extremely channery analogs of loam, clay loam, or silty clay loam

Brownsville Series

Depth class: Deep or very deep

Drainage class: Well drained

Permeability: Moderate or moderately rapid

Parent material: Material weathered from interbedded siltstone and fine grained sandstone bedrock

Landform: Hills

Position on the landform: Backslopes

Slope range: 15 to 70 percent
Commonly adjacent soils: Coshocton, Richland, Westmoreland

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Brownsville channery silt loam, 25 to 35 percent slopes; about 2 miles northwest of New Castle, in New Castle Township; 7,400 feet northeast of the junction of Township Road 52 and Township Road 177, along Township Road 52, then 900 feet northwest, T. 6 N., R. 9 W.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) channery silt loam, grayish brown (10YR 5/2) dry; strong fine granular structure; very friable; common coarse and many fine roots; 20 percent channers (5 percent have a diameter of more than 3 inches); very strongly acid; clear smooth boundary.

A2—2 to 6 inches; brown (10YR 4/3) channery silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; common fine, medium, and coarse roots; 30 percent channers (10 percent have a diameter of more than 3 inches); very strongly acid; clear smooth boundary.

Bw1—6 to 13 inches; yellowish brown (10YR 5/4) very channery silt loam; weak medium subangular blocky structure; friable; few coarse and common fine roots; 50 percent channers (20 percent have a diameter of more than 3 inches); strongly acid; gradual smooth boundary.

Bw2—13 to 24 inches; yellowish brown (10YR 5/4) extremely channery silt loam; weak fine subangular blocky structure; friable; moderate fine and medium roots; 75 percent channers (20 percent have a diameter of more than 3 inches); strongly acid; gradual smooth boundary.

Bw3—24 to 38 inches; yellowish brown (10YR 5/4) extremely channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 85 percent channers (35 percent have a diameter of more than 3 inches); very strongly acid; gradual smooth boundary.

C1—38 to 58 inches; yellowish brown (10YR 5/4) extremely flaggy silt loam; massive; friable; few thin dark yellowish brown (10YR 4/4) and brown (7.5YR 5/4) clay coatings on horizontal surfaces of flagstones; few fine roots along rock fractures; 75 percent channers and flagstones (50 percent have a diameter of more than 6 inches); very strongly acid; gradual smooth boundary.

C2—58 to 65 inches; yellowish brown (10YR 5/4) extremely flaggy silt loam; massive; friable; few fine roots along rock fractures; 80 percent channers and flagstones (60 percent have a diameter of more than 6 inches); very strongly acid; clear smooth boundary.

R—65 to 70 inches; fractured siltstone bedrock; fractures are more than 4 inches apart.

Range in Characteristics

Thickness of the solum: 24 to 55 inches
Depth to bedrock: 40 to 72 inches
Content of rock fragments: A horizon—5 to 35 percent; Bw horizon—15 to 85 percent; C horizon—35 to 90 percent
A horizon:
Color—hue of 10YR, value of 2 to 5, chroma of 1 to 4
Texture—channery silt loam
Bw horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 3 to 6
Texture—channery, very channery, or extremely channery or flaggy, very flaggy, or extremely flaggy silt loam or loam
C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 4 to 6
Texture—very flaggy or extremely flaggy or very channery or extremely channery silt loam or loam

Caneadea Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Lacustrine sediments
Landform: Lake plains
Position on the landform: Flats
Slope range: 0 to 2 percent
Commonly adjacent soils: Fitchville, Glenford, Newark

Taxonomic class: Fine, illitic, mesic Aeric Ochraqualfs

Typical Pedon

Caneadea silt loam, 0 to 2 percent slopes; about 3 miles northeast of Warsaw, in Bethlehem Township; 600 feet west of the intersection of Township Road 34 and County Road 24, along County Road 24, then 200 feet south, T. 6 N., R. 7 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few fine roots; strongly acid; abrupt smooth boundary.

Bt—8 to 16 inches; yellowish brown (10YR 5/4) silty clay; many medium grayish brown (10YR 5/2) coatings on faces of peds; many fine prominent dark grayish brown (2.5Y 4/2) and common fine prominent strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few faint dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; strongly acid; gradual wavy boundary.

Btg1—16 to 30 inches; grayish brown (2.5Y 5/2) silty clay; many medium prominent strong brown (7.5YR 4/6) and few fine prominent light gray to gray (10YR 6/1) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common faint dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; few fine roots; few dark concretions of iron and manganese oxide; strongly acid; gradual wavy boundary.

Btg2—30 to 44 inches; grayish brown (2.5Y 5/2) silty clay; many medium prominent strong brown (7.5YR 4/6) mottles; weak medium prismatic structure parting to weak medium subangular blocky; firm; many continuous prominent gray (5Y 5/1) clay films in pores; slightly acid; clear wavy boundary.

Cg1—44 to 60 inches; dark grayish brown (2.5Y 4/2) silty clay; many medium prominent dark yellowish brown (10YR 4/6) mottles; massive; firm; many medium carbonate concretions; strong effervescence; moderately alkaline; gradual wavy boundary.

Cg2—60 to 80 inches; dark grayish brown (2.5Y 4/2) silty clay; many medium prominent dark yellowish brown (10YR 4/6) mottles; massive; firm; common medium carbonate concretions; moderately alkaline; strong effervescence.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to carbonates: 40 to 60 inches
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3.
Texture—silt loam
Bt or Btg horizons:
Color—hue of 2.5Y or 10YR or is neutral; value of 4 or 5; chroma of 0 to 4 in the upper part and 0 to 2 in the lower part
Texture—silty clay
Cg or C horizon:
Color—hue of 10YR, 2.5Y, or 5Y or is neutral; value of 4; chroma of 0 to 4
Texture—silty clay, silty clay loam

Chili Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid in the subsoil and rapid in the substratum
Parent material: Outwash
Landform: Terraces
Position on the landform: Treads, risers
Slope range: 0 to 35 percent
Commonly adjacent soils: Watertown, Wheeling

Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludalfs

Typical Pedon

Chili loam, 0 to 2 percent slopes; about 4 miles southwest of Coshocton, in Franklin Township; about 0.4 mile west of the intersection of U.S. Route 16 and Township Road 285, along Township Road 285, then 1,400 feet south, T. 4 N., R. 6 W

Ap—0 to 8 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; few fine roots; 5 percent gravel; moderately acid; abrupt smooth boundary.

Bt1—8 to 16 inches; strong brown (7.5YR 5/6) gravelly clay loam; weak fine granular structure; firm; common fine brown (7.5YR 5/4) clay films on faces of peds; few fine roots; about 20 percent gravel; strongly acid; clear wavy boundary.

Bt2—16 to 21 inches; strong brown (7.5YR 5/6) gravelly clay loam; weak fine granular structure; firm; common fine brown (7.5YR 5/4) clay films on faces of peds; few fine roots; about 30 percent gravel; strongly acid; clear wavy boundary.

Bt3—21 to 30 inches; strong brown (7.5YR 5/6) very gravelly clay loam; weak fine granular structure; firm; few fine brown (7.5YR 5/4) clay films on faces of peds; few fine roots; about 40 percent gravel; strongly acid; clear wavy boundary.

BC—30 to 48 inches; brown (10YR 4/3) very gravelly loam; weak fine subangular blocky structure; firm; few fine dark brown (10YR 3/3) clay bridges between sand and gravel fragments; about 45 percent gravel; strongly acid; gradual wavy boundary.

C—48 to 80 inches; yellowish brown (10YR 5/4) very gravelly loamy sand; single grain; loose; about 50 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Content of rock fragments: Ap horizon—0 to 25 percent; Bt horizon to a depth of 20 inches—5 to 30 percent; B horizon between depths of 20 and 40 inches—15 to 50 percent; B horizon below a depth of 40 inches and C horizon—25 to 60 percent
Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 2 to 4
Texture—loam
Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—gravelly clay loam, gravelly loam, loam, or clay loam in the upper part of the horizon; the gravelly or very gravelly analogs of clay loam or loam in the lower part
C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—the gravelly or very gravelly analogs of loamy sand or sand

Cidermill Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the subsoil and rapid in the substratum
Parent material: Silty material over outwash
Landform: Terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Commonly adjacent soils: Chili, Watertown

Taxonomic class: Fine-silty, mixed, mesic Ultic Hapludalfs

Typical Pedon

Cidermill silt loam, 0 to 2 percent slopes; about 4 miles northwest of Coshocton, in Bethlehem Township; about 3,000 feet west of the intersection of U.S. Route 36 and County Road 23, along U.S. Route 36, then 500 feet north, T. 6 N., R. 7 W.

Ap—0 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure; friable; few fine roots; moderately acid; abrupt smooth boundary.
Bt1—12 to 20 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; common faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; moderately acid; clear wavy boundary.
Bt2—20 to 30 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; firm; common faint yellowish brown (10YR 5/4) clay films on faces of peds; few dark concretions of iron and manganese oxide; few fine roots; strongly acid; clear wavy boundary.
2Bt3—30 to 35 inches; yellowish brown (10YR 5/4) very fine sandy loam; weak medium subangular blocky structure; firm; few faint yellowish brown (10YR 5/4) clay films on faces of peds; few dark concretions of iron and manganese oxide; strongly acid; clear wavy boundary.
2BC—35 to 43 inches; yellowish brown (10YR 5/4) very fine sandy loam; weak medium subangular blocky structure; firm; few dark concretions of iron and manganese oxide; 5 percent rock fragments; strongly acid; clear wavy boundary.
2C—43 to 80 inches; yellowish brown (10YR 5/6) stratified gravelly and very gravelly sand; single grain; loose; 15 to 40 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Thickness of the silty mantle: 24 to 40 inches
Content of rock fragments: Ap and Bt horizons—0 to 5 percent; 2Bt and 2BC horizons—0 to 50 percent; 2C horizon—15 to 60 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 3 or 4
Texture—silt loam
Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam, silty clay loam
2Bt or 2BC horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—very fine sandy loam, loam, sandy loam, or the gravelly or very gravelly analogs of those textures
2C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—gravelly or very gravelly analogs of sand, sandy loam, and loamy sand

Clarksburg Series

Depth class: Very deep
Drainage class: Moderately well drained

Permeability: Slow or moderately slow
Parent material: Colluvium
Landform: Hills
Position on the landform: Footslopes
Slope range: 6 to 25 percent
Commonly adjacent soils: Coshocton, Hazleton, Westmoreland

Taxonomic class: Fine-loamy, mixed, mesic Typic Fragiudalfs

Taxadjunct statement: The Clarksburg soils in this county are taxadjuncts to the series because the soils have a brittle zone in the lower part of the subsoil but do not have the structure development that is characteristic of a fragipan. This difference, however, does not significantly affect the use or management of the soils.

Typical Pedon

Clarksburg silt loam, 15 to 25 percent slopes; about 3 miles southeast of Plainfield, in Linton Township; about 4,000 feet west of the intersection of Township Road 108 and Township Road 110, along Township Road 108, then 200 feet northwest, T. 4 N., R. 4 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.

BA—5 to 9 inches; dark yellowish brown (10YR 4/6) silt loam; weak fine subangular blocky structure; friable; few fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.

BE—9 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; very friable; few fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—13 to 24 inches; dark yellowish brown (10YR 4/4) channery loam; few fine faint strong brown (7.5YR 5/6) mottles; weak fine and medium subangular blocky structure; firm; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; common black manganese concretions; 20 percent rock fragments; few fine roots; strongly acid; clear wavy boundary.

Bt2—24 to 32 inches; yellowish brown (10YR 5/6) channery loam; common fine distinct grayish brown (10YR 5/2) and common fine prominent strong brown (7.5YR 5/6) mottles; moderate fine and medium subangular blocky structure; firm; common distinct brown (10YR 5/3) clay films on faces of peds; common black manganese concretions; 25 percent rock fragments; few fine roots; moderately acid; clear wavy boundary.

Btx1—32 to 53 inches; yellowish brown (10YR 5/4) channery clay loam; many medium prominent strong brown (7.5YR 5/6) and common fine prominent gray (10YR 5/1) mottles; weak coarse prismatic structure; very firm; common distinct grayish brown (10YR 5/2) clay films on prism faces; common black manganese concretions; 25 percent rock fragments; somewhat brittle; slightly acid; clear wavy boundary.

Btx2—53 to 65 inches; yellowish brown (10YR 5/4) channery clay loam; many medium prominent grayish brown (2.5Y 5/2) and common fine prominent strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure; very firm; common distinct grayish brown (10YR 5/2) clay films on prism faces; common black manganese concretions; 25 percent rock fragments; very brittle; slightly acid; gradual wavy boundary.

C—65 to 80 inches; yellowish brown (10YR 5/4) channery loam; common distinct grayish brown (10YR 5/2) and common fine distinct yellowish brown (10YR 5/6) mottles; massive; firm; few black manganese concretions; 20 percent rock fragments; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to the Btx horizon: 20 to 36 inches
Content of rock fragments: Ap horizon—0 to 15 percent; Bt horizon—0 to 25 percent; Btx horizon—5 to 30 percent; C horizon—5 to 40 percent

Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 4 to 6
Texture—clay loam, loam, silty clay loam, or the channery analogs of those textures

Btx horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 3 to 6
Texture—clay loam, loam, silty clay loam, or the channery analogs of those textures

C horizon:
Color—hue of 7.5YR or 10YR, value of 5, chroma of 3 to 6
Texture—loam, clay loam, silty clay loam, or the channery or very channery analogs of those textures

Coshocton Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum and moderately slow or slow in the lower part
Parent material: Material weathered from interbedded siltstone, sandstone, and shale
Landform: Hills
Position on the landform: Summits, shoulders, backslopes, footslopes
Slope range: 2 to 35 percent
Commonly adjacent soils: Guernsey, Keene, Westmoreland

Taxonomic class: Fine-loamy, mixed, mesic Aquultic Hapludalfs

Typical Pedon

Coshocton silt loam, 6 to 15 percent slopes, eroded; in an area of the North Appalachian Experimental Watershed, Agricultural Research Service, in White Eyes Township; 3,600 feet north and 400 feet west of the southeast corner of sec. 5, T. 6 N., R. 5 W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; streaks and pockets of yellowish brown (10YR 5/4) subsoil material; weak medium granular structure; friable; many fine roots; 5 percent rock fragments; moderately acid; abrupt smooth boundary.

BA—7 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; 5 percent shale fragments; strongly acid; clear smooth boundary.

Bt1—10 to 14 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine and medium subangular blocky structure; friable; common fine roots; common faint light yellowish brown (10YR 6/4) clay films on faces of peds; 10 percent rock fragments; very strongly acid; clear smooth boundary.

Bt2—14 to 17 inches; yellowish brown (10YR 5/4) channery silty clay loam; many fine distinct strong brown (7.5YR 5/6) and common fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; common faint light yellowish brown (10YR 6/4) clay films on faces of peds; few fine roots; 15 percent rock fragments; very strongly acid; clear smooth boundary.

Bt3—17 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; common fine distinct yellowish brown (10YR 5/8) and few fine distinct light brownish gray (2.5Y 6/2) mottles; moderate medium and coarse prismatic structure parting to weak coarse subangular blocky; firm; many distinct light brownish gray (2.5Y 6/2) silt coatings on vertical faces of prisms; common faint and distinct light yellowish brown (10YR 6/4) and grayish brown (10YR 5/2) clay films on faces of peds; few fine roots; many dark concretions of iron and manganese oxide; 10 percent rock fragments; very strongly acid; abrupt wavy boundary.

BC—27 to 46 inches; yellowish brown (10YR 5/4) channery loam; few fine distinct light brownish gray (2.5Y 6/2) and few fine distinct yellowish brown (10YR 5/8) mottles; weak thick platy structure parting to weak fine subangular blocky; very firm; few faint light yellowish brown (10YR 6/4) clay films on vertical faces of peds; few fine roots; many dark concretions of iron and manganese oxide; 20 percent rock fragments; very strongly acid; clear smooth boundary.

C—46 to 58 inches; yellowish brown (10YR 5/4) channery silty clay loam; common medium distinct light brownish gray (2.5Y 6/2) and few fine faint yellowish brown (10YR 5/8) mottles; massive; firm; 30 percent rock fragments; strongly acid; clear wavy boundary.

R—58 to 60 inches; fractured shale with thin beds of sandstone.

Range in Characteristics

Thickness of the solum: 24 to 50 inches
Depth to bedrock: 40 to 84 inches
Content of rock fragments: Ap horizon—2 to 20 percent; B horizon—2 to 15 percent in the upper part of the horizon and 2 to 35 percent in the lower part; C horizon—2 to 60 percent

Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 to 4
Texture—silt loam

Upper part of the Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 4 to 6
Texture—silty clay loam, clay loam, loam, or the channery analogs of those textures

Lower part of the Bt horizon or the BC horizon:
Color—hue of 10YR, 7.5YR, or 2.5Y; value of 4 to 6; chroma of 2 to 6
Texture—silty clay loam, silty clay, clay loam, loam, or the channery analogs of those textures

C horizon:
Color—hue of 10YR, 7.5YR, or 2.5Y; value of 4 to 7; chroma of 2 to 6

Texture—silty clay loam, loam, clay loam, silty clay, or the channery or very channery analogs of those textures

Dekalb Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Rapid
Parent material: Sandstone residuum
Landform: Convex ridgetops
Position on the landform: Summits, shoulders
Slope range: 6 to 15 percent
Commonly adjacent soils: Hazleton, Westmoreland

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Dekalb channery sandy loam, 6 to 15 percent slopes, stony; in New Castle Township; about 4,000 feet south of the intersection of State Route 715 and Township Road 423, along Township Road 423, then 1,200 feet east, T. 6 N., R. 9 W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) channery sandy loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many medium and coarse roots; 15 percent rock fragments; very strongly acid; abrupt wavy boundary.

Bw1—5 to 15 inches; yellowish brown (10YR 5/6) channery sandy loam; weak fine subangular blocky structure; friable; few medium roots; 25 percent rock fragments; very strongly acid; gradual wavy boundary.

Bw2—15 to 24 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak fine subangular blocky structure; friable; few fine roots; 45 percent rock fragments; very strongly acid; gradual wavy boundary.

C—24 to 36 inches; yellowish brown (10YR 5/6) extremely channery loamy sand; single grain; loose; 70 percent rock fragments; very strongly acid; gradual wavy boundary.

R—36 to 38 inches; fractured sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: A horizon—10 to 35 percent; Bw horizon—15 to 60 percent; C horizon—50 to 90 percent

A horizon:
Color—hue of 10YR, value of 2 or 3 , chroma of 1 or 2
Texture—channery sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 5 to 8, chroma of 4 to 8
Texture—the channery or very channery analogs of sandy loam or loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, chroma of 4 to 6
Texture—the extremely channery or very channery analogs of loamy sand or sandy loam

Euclid Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Lacustrine sediments
Landform: Low slackwater terraces
Position on the landform: Treads
Slope range: 0 to 3 percent
Commonly adjacent soils: Glenford, Tioga

Taxonomic class: Fine-silty, mixed, nonacid, mesic Aeric Haplaquepts

Typical Pedon

Euclid silt loam, occasionally flooded; in Clark Township; 1,200 feet south of the intersection of State Route 60 and Township Road 25, along State Route 60, then 200 feet east, T. 7 N., R. 7 W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; weak fine granular structure; friable; few fine roots; moderately acid; abrupt smooth boundary.

Bw1—9 to 19 inches; brown (10YR 5/3) silty clay loam; many distinct light brownish gray (2.5Y 6/2) coatings on faces of peds; many medium prominent strong brown (7.5YR 5/6) and common medium distinct grayish brown (10YR 5/2) mottles; weak fine and medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

Bw2—19 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; many distinct light brownish gray (2.5Y 6/2) coatings on faces of peds; common fine prominent strong brown (7.5YR 5/6) and common medium distinct grayish brown (10YR 5/2) mottles; weak fine and medium subangular blocky structure; friable; few fine roots; common dark concretions of iron and manganese oxide; strongly acid; clear smooth boundary.

Bw3—26 to 32 inches; brown (10YR 5/3) silty clay loam; many distinct light brownish gray (2.5Y 6/2) coatings on prism faces; common fine prominent yellowish red (5YR 5/6) and common medium distinct light brownish gray (10YR 6/2) mottles; weak medium prismatic structure; firm; few fine roots; common dark concretions of iron and manganese oxide; strongly acid; gradual wavy boundary.

BC—32 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; many fine prominent yellowish red (5YR 5/6) and many medium distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure; firm; few dark concretions of iron and manganese oxide; strongly acid; gradual wavy boundary.

C—48 to 80 inches; light brownish gray (10YR 6/2) stratified silt loam and silty clay loam; common medium prominent red (2.5YR 5/6) and common fine prominent strong brown (7.5YR 5/6) mottles; massive; firm; few dark concretions of iron and manganese oxide; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 55 inches

Ap horizon:

Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3

Texture—silt loam

Bw or BC horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6

Texture—silty clay loam or silt loam

C horizon:

Color—hue of 2.5Y, 10YR, or 7.5YR; value of 4 to 6; chroma of 1 to 6

Texture—stratified silt loam and silty clay loam; thin strata of fine sandy loam in some pedons

Fairpoint Series

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately slow

Parent material: Mine spoil

Landform: Reclaimed surfaced-mined areas in the uplands

Position on the landform: Summits, backslopes

Slope range: 0 to 35 percent

Commonly adjacent soils: Coshocton, Hazleton, Westmoreland

Taxonomic class: Loamy-skeletal, mixed, nonacid, mesic Typic Udorthents

Typical Pedon

Fairpoint loam, 25 to 35 percent slopes; about 3.5 miles northeast of Plainfield, in Oxford Township; about 1,700 feet northeast of the intersection of County Road 410 and Township Road 259, along Township Road 259, then 600 feet east, T. 5 N., R. 4 W.

Ap—0 to 4 inches; yellowish brown (10YR 5/4) loam, very pale brown (10YR 7/3) dry; weak medium granular structure; friable; many fine roots; 5 percent rock fragments; moderately acid; gradual wavy boundary.

AC—4 to 10 inches; yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) loam; weak fine subangular blocky structure; friable; common fine roots; 10 percent rock fragments; moderately acid; abrupt wavy boundary.

2C2—10 to 24 inches; gray (5Y 5/1) very channery silty clay loam; firm; few fine and few coarse roots; 40 percent rock fragments; slightly acid; gradual irregular boundary.

2C3—24 to 38 inches; olive gray (5Y 4/2) extremely channery silty clay loam; very firm; few fine roots; 65 percent rock fragments; slightly acid; gradual irregular boundary.

2C4—38 to 80 inches; grayish brown (2.5Y 5/2) very channery silty clay loam; very firm; 50 percent rock fragments; slightly acid.

Range in Characteristics

Thickness of the reconstructed soil: 4 to 10 inches

Content of rock fragments: A horizon—0 to 15 percent; C horizon—0 to 15 percent; 2C horizon—30 to 80 percent

Ap horizon:

Color—hue of 7.5YR to 5Y or is neutral; value of 3 to 6; chroma of 0 to 6

Texture—loam

AC horizon:

Color—hue of 7.5YR to 5Y or is neutral; value of 3 to 6; chroma of 0 to 6

Texture—loam, silt loam, clay loam

2C horizon:

Color—hue of 7.5YR to 5Y, value of 3 to 6, chroma of 0 to 8

Texture—the channery, very channery, or extremely channery analogs of silty clay loam, loam, or clay loam

Farmerstown Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow or moderately slow
Parent material: Mine spoil
Landform: Reclaimed surface-mined areas in the uplands
Position on the landform: Summits, backslopes
Slope range: 0 to 20 percent
Commonly adjacent soils: Coshocton, Westmoreland

Taxonomic class: Fine-loamy, mixed, acid, mesic Typic Udorthents

Typical Pedon

Farmerstown loam, 8 to 20 percent slopes; about 2.5 miles southeast of Clark, in Mill Creek Township; about 1,100 feet west of the intersection of County Road 38 and Township Road 50, along Township Road 50, then 100 feet north, T. 7 N., R. 7 W.

Ap—0 to 6 inches; loam, 60 percent dark yellowish brown (10YR 4/4), 30 percent yellowish brown (10YR 5/6), and 10 percent light brownish gray (10YR 6/2); pale brown (10YR 6/3) dry; weak medium subangular blocky structure; firm; 5 percent rock fragments; strongly acid; clear smooth boundary.

C1—6 to 11 inches; loam, 50 percent dark yellowish brown (10YR 4/4), 40 percent yellowish brown (10YR 5/6), and 10 percent grayish brown (10YR 5/2); massive; firm; 10 percent rock fragments; strongly acid; gradual wavy boundary.

C2—11 to 18 inches; clay loam, 70 percent yellowish brown (10YR 5/4), 20 percent grayish brown (10YR 5/2), and 10 percent strong brown (7.5YR 5/6); massive; very firm; 10 percent rock fragments; strongly acid; gradual wavy boundary.

C3—18 to 24 inches; clay loam, 70 percent light olive brown (2.5Y 5/4), 20 percent yellowish brown (10YR 5/6), and 10 percent light brownish gray (10YR 6/2); massive; very firm; 10 percent rock fragments; strongly acid; gradual wavy boundary.

C4—24 to 32 inches; clay loam, 60 percent light olive brown (2.5Y 5/4) and 40 percent dark grayish brown (10YR 4/2); massive; very firm; 10 percent rock fragments; strongly acid; gradual wavy boundary.

2C5—32 to 62 inches; olive (5Y 5/4) channery silty clay loam; massive; very firm; 20 percent rock fragments; strongly acid; gradual wavy boundary.

2C6—62 to 80 inches; very channery silty clay loam, 70 percent olive (5Y 5/4) and 30 percent olive gray (5Y 4/2); massive; very firm; 40 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the reconstructed soil: 20 to 40 inches
Content of rock fragments: Ap horizon—0 to 15 percent; C horizon—0 to 25 percent; 2C horizon—15 to 80 percent
Ap horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 2 to 6
Texture—loam
C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 2 to 6
Texture—loam, clay loam, or silty clay loam in the upper part of the horizon; the channery analogs of those textures in the lower part
2C horizon:
Color—hue of 7.5YR to 5Y or is neutral; value of 4 to 6; chroma of 0 to 6
Texture—the channery, very channery, or extremely channery analogs of silty clay loam, loam, or clay loam

Fitchville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Lacustrine sediments
Landform: Slackwater terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Commonly adjacent soils: Glenford, Newark, Orrville, Sebring

Taxonomic class: Fine-silty, mixed, mesic Aeric Ochraqualfs

Typical Pedon

Fitchville silt loam, 0 to 2 percent slopes; in Oxford Township; 2,200 feet west of the intersection of County Road 410 and Township Road 121, along County Road 410, then 1,000 feet south, T. 5 N., R. 4 W.

Ap—0 to 9 inches; grayish brown (2.5Y 5/2) silt loam, light gray (2.5Y 7/2) dry; weak fine and medium granular structure; friable; common fine roots; common fine dark concretions of iron and manganese oxide; strongly acid; abrupt wavy boundary.

BE—9 to 12 inches; brown (10YR 5/3) silt loam; common small distinct yellowish brown (10YR 5/6) and few fine faint grayish brown (10YR 5/2) mottles; weak fine subangular blocky structure; friable; common fine roots; common small dark concretions of iron and manganese oxide; very strongly acid; clear wavy boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/4) silt loam; many fine distinct grayish brown (2.5Y 5/2) coatings on faces of peds; common fine distinct strong brown (7.5YR 5/6) and common fine faint light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; common light brownish gray (2.5Y 6/2) clay films on vertical faces of peds; few fine roots; very strongly acid; clear wavy boundary.

Bt2—18 to 28 inches; brown (10YR 5/3) silty clay loam; many small distinct strong brown (7.5YR 5/6) and common fine faint grayish brown (10YR 5/2) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; many light brownish gray (2.5Y 6/2) clay films on vertical faces of peds; few fine roots; very strongly acid; gradual wavy boundary.

BC—28 to 40 inches; brown (10YR 5/3) silt loam; many fine distinct strong brown (7.5YR 5/6), common fine faint grayish brown (10YR 5/2), and common fine distinct light gray (10YR 6/1) mottles; weak moderate prismatic structure; friable; thin lenses of fine sandy loam; strongly acid; gradual wavy boundary.

C—40 to 80 inches; yellowish brown (10YR 5/4) stratified silt loam and fine sandy loam; many fine distinct strong brown (7.5YR 5/6), few faint grayish brown (10YR 5/2), and common fine distinct light gray (10YR 6/1) mottles; massive; friable; thin dark accumulations of iron and manganese oxide; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 70 inches

Ap horizon:

Color—hue of 2.5Y or 10YR, value of 4 or 5, chroma of 2

Texture—silt loam

Bt and BC horizons:

Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 1 to 6

Texture—silt loam, silty clay loam

C horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 6

Texture—stratified layers of silt loam, silty clay loam, or fine sandy loam, or, in some pedons, loam, clay loam, or silty clay or lenses of fine sand or very fine sand

Germano Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Sandstone residuum
Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 2 to 15 percent
Commonly adjacent soils: Coshocton, Rigley, Westmoreland

Taxonomic class: Coarse-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Germano sandy loam, 6 to 15 percent slopes, eroded; in Adams Township; 1,800 feet south and 600 feet west of the northeast corner of sec. 2, T. 6 N., R. 4 W.

Ap—0 to 10 inches; brown (10YR 4/3) sandy loam, pale brown (10YR 6/3) dry; streaks and pockets of yellowish brown (10YR 5/6) subsoil material; weak fine granular structure; friable; few fine roots; 5 percent rock fragments; strongly acid; abrupt smooth boundary.

Bt1—10 to 16 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

Bt2—16 to 20 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

BC—20 to 24 inches; yellowish brown (10YR 5/6) channery sandy loam; weak medium subangular blocky structure; firm; few fine roots; 25 percent rock fragments; very strongly acid; clear smooth boundary.

Cr—24 to 29 inches; strong brown (7.5YR 5/6), soft sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Ap horizon—2 to 20 percent; Bt horizon—3 to 35 percent; BC or C horizon—20 to 80 percent
Additional features: An E horizon in some pedons and a C horizon in other pedons

Ap horizon:
Color—hue of 10YR, value of 4, chroma of 3 or 4
Texture—sandy loam
Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 4 to 6
Texture—sandy loam, loam, or the channery analogs of those textures
BC or C horizon (if it occurs):
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 to 6
Texture—the very channery or extremely channery analogs of sandy loam or loamy sand

Gilpin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Material weathered from interbedded siltstone, sandstone, and shale
Landform: Hills
Position on the landform: Summits, shoulders
Slope range: 2 to 25 percent
Commonly adjacent soils: Coshocton, Westmoreland

Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Gilpin silt loam, 6 to 15 percent slopes; about 4 miles southwest of Coshocton, in Jackson Township; about 1,600 feet east of the intersection of County Road 6 and Township Road 443, along Township Road 443, then 600 feet south, T. 5 W., R. 6 W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; very friable; many fine and medium roots; 5 percent rock fragments; strongly acid; clear wavy boundary.
BE—5 to 9 inches; yellowish brown (10YR 5/4) silt loam; weak coarse subangular blocky structure parting to moderate medium platy; very friable; few fine and medium roots; 10 percent rock fragments; strongly acid; clear wavy boundary.
Bt1—9 to 14 inches; strong brown (7.5YR 5/6) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; 10 percent rock fragments; very strongly acid; clear smooth boundary.
Bt2—14 to 23 inches; strong brown (7.5YR 5/6) channery silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; common fine distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; 25 percent rock fragments; very strongly acid; gradual smooth boundary.
BC—23 to 32 inches; dark yellowish brown (10YR 4/6) very channery loam; weak coarse subangular blocky structure; friable; few fine roots; 50 percent rock fragments; very strongly acid; gradual wavy boundary.
Cr—32 to 36 inches; yellowish red (5YR 4/6), soft, fine grained sandstone.
R—36 to 41 inches; hard, interbedded fine grained sandstone and siltstone.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Ap horizon—5 to 35 percent; Bt horizon—5 to 35 percent; BC or C horizon—35 to 90 percent
Additional features: C horizon in some pedons
Ap horizon:
Color—hue of 10YR, value of 3 to 5, chroma of 2 to 4
Texture—silt loam
Bt horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 4 to 6
Texture—silt loam, loam, silty clay loam, or the channery analogs of those textures
BC or C horizon (if it occurs):
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 3 to 6
Texture—the very channery or extremely channery analogs of silt loam, loam, or silty clay loam

Glenford Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Lacustrine sediments
Landform: Slackwater terraces
Position on the landform: Treads, risers, drainageways
Slope range: 0 to 15 percent
Commonly adjacent soils: Fitchville, Mentor, Orrville

Taxonomic class: Fine-silty, mixed, mesic Aquic Hapludalfs

Typical Pedon

Glenford silt loam, 0 to 2 percent slopes; in Oxford Township; 3,900 feet west of the intersection of County

Road 410 and Township Road 121, along County Road 410, then 200 feet south, T. 5 N., R. 4 W.

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; mixed with some streaks and pockets of yellowish brown (10YR 5/6) subsoil material; weak fine granular structure; friable; common fine roots; strongly acid; abrupt smooth boundary.

Bt1—9 to 15 inches; yellowish brown (10YR 5/6) silt loam; the upper part of the horizon mixed with some streaks of brown (10YR 4/3) material; moderate fine subangular blocky structure; friable; common faint yellowish brown (10YR 5/4) clay films on vertical faces of peds; few fine roots; strongly acid; clear smooth boundary.

Bt2—15 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; few or common fine faint grayish brown (2.5Y 5/2) and few fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common faint yellowish brown (10YR 5/4) clay films on vertical faces of peds; few fine roots; very strongly acid; abrupt wavy boundary.

Bt3—24 to 35 inches; strong brown (7.5YR 4/6) silty clay loam; common small prominent light gray (10YR 6/1) mottles; moderate medium prismatic structure; firm; few faint yellowish brown (10YR 5/4) clay films on vertical faces of peds; few fine roots; very strongly acid; clear smooth boundary.

BC—35 to 47 inches; strong brown (7.5YR 4/6) stratified silty clay loam and loam; common to many medium distinct light brownish gray (2.5Y 6/2) mottles; massive; firm; few dark concretions of iron and manganese oxide; strongly acid; clear smooth boundary.

C—47 to 80 inches; yellowish brown (10YR 5/6) stratified fine sandy loam, silt loam, and loam; common to many medium distinct light brownish gray (2.5Y 6/2) mottles; massive; friable; common dark concretions of iron and manganese oxide; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Content of rock fragments: C horizon—0 to 5 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam
Bt and BC horizons:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, silty clay loam
C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 3 to 6
Texture—stratified with dominant layers of silt loam, silty clay loam, loam, or fine sandy loam

Guernsey Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum and moderately slow or slow in the lower part
Parent material: Colluvium over shale residuum
Landform: Hills
Position on the landform: Backslopes, footslopes
Slope range: 6 to 25 percent
Commonly adjacent soils: Aaron, Coshocton, Westmoreland

Taxonomic class: Fine, mixed, mesic Aquic Hapludalfs

Typical Pedon

Guernsey silt loam, 15 to 25 percent slopes; about 1.5 miles north of Warsaw, in Jefferson Township; about 1,800 feet north and 1,300 feet east of the center of sec. 10, T. 6 N, R. 7 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; few fine roots; 3 percent rock fragments; strongly acid; clear wavy boundary.

Bt1—9 to 16 inches; yellowish brown (10YR 5/4) silty clay loam; brown (10YR 5/3) silt coatings in root channels; moderate fine subangular blocky structure; friable; few faint brown (7.5YR 5/4) clay films on faces of peds; few fine roots; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bt2—16 to 21 inches; brown (10YR 5/3) and yellowish brown (10YR 5/4) silty clay loam; common fine distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm; many faint brown (10YR 5/3) clay films on faces of peds; few fine roots; few fine dark concretions of iron and manganese oxide; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt3—21 to 41 inches; yellowish brown (10YR 5/6) silty clay; many medium prominent grayish brown (10YR 5/2) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common distinct brown (10YR 5/3) clay films on faces of peds; few fine roots;

common intersecting slickensides; 5 percent rock fragments; very strongly acid; gradual wavy boundary.

2BC—41 to 53 inches; light olive brown (2.5Y 5/6) silty clay; many medium prominent grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; firm; 10 percent rock fragments; strongly acid; gradual wavy boundary.

2C—53 to 80 inches; light olive brown (2.5Y 5/4) and grayish brown (2.5Y 5/2) silty clay; massive; firm; 10 percent soft shale fragments; slightly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 50 inches
Content of rock fragments: Ap horizon—2 to 15 percent; Bt horizon—2 to 25 percent; 2BC and 2C horizons—2 to 35 percent
Ap horizon:
Color—hue of 10YR, value of 3 to 5, chroma of 2 to 4
Texture—silt loam
Bt and 2Bt horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 3 to 6
Texture—silty clay loam, silty clay, clay, or the channery analogs of those textures
2BC and 2C horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 to 6; chroma of 2 to 6
Texture—clay, silty clay, or the channery analogs of those textures

Hazleton Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Parent material: Sandstone residuum
Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 70 percent
Commonly adjacent soils: Aaron, Coshocton, Westmoreland

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Hazleton channery sandy loam, 25 to 35 percent slopes; about 1.5 miles north of New Castle, in New Castle Township; about 1 mile south of the intersection of State Route 715 and Township Road 423, along Township Road 423, then 1,400 feet east, T. 6 N., R. 9 W.

Oi—2 inches to 0; very dark brown (7.5YR 2/2) partially decayed leaf litter; abrupt wavy boundary.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) channery sandy loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and common medium roots; 20 percent rock fragments; strongly acid; abrupt wavy boundary.

Bw1—3 to 12 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak fine subangular blocky structure; very friable; common fine and few medium roots; 40 percent rock fragments; strongly acid; clear wavy boundary.

Bw2—12 to 21 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak fine subangular blocky structure; very friable; common fine roots; 45 percent rock fragments; strongly acid; clear wavy boundary.

BC—21 to 42 inches; light yellowish brown (10YR 6/4) extremely channery loamy sand; weak fine subangular blocky structure; very friable; few fine and medium roots; few distinct strong brown (7.5YR 5/6) clay accumulations on faces of rocks; 60 percent rock fragments; strongly acid; clear wavy boundary.

C—42 to 62 inches; light yellowish brown (10YR 6/4) extremely channery loamy sand; massive; very friable; 70 percent rock fragments; very strongly acid; gradual diffuse boundary.

R—62 to 64 inches; sandstone bedrock

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: 40 to 72 inches
Content of rock fragments: A horizon—15 to 35 percent; Bw horizon—15 to 70 percent; C horizon—35 to 80 percent
A or Ap horizon:
Color—hue of 10YR, value of 2 to 4, chroma of 1 or 2
Texture—channery sandy loam
Bw horizon:
Color—hue of 10YR to 5YR, value of 4 to 6, chroma of 3 to 6
Texture—the channery, very channery, or extremely channery analogs of sandy loam or loam
BC and C horizons:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, chroma of 3 to 6
Texture—the extremely channery or very channery analogs of loamy sand or sandy loam

Homewood Series

Depth class: Very deep
Drainage class: Well drained or moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Parent material: Glacial till with a mantle of loess in places
Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 2 to 15 percent
Commonly adjacent soils: Loudon, Titusville

Taxonomic class: Fine-loamy, mixed, mesic Typic Fragiudalfs

Typical Pedon

Homewood silt loam, 2 to 6 percent slopes; about 0.5 mile east of New Castle, in New Castle Township; 400 feet north of the intersection of State Routes 36 and 206, along State Route 206, then 100 feet west, T. 6 N., R. 9 W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine roots; strongly acid; abrupt wavy boundary.

BE—9 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/6) loam; moderate fine subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/6) clay films on faces of peds; few fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.

Bt2—18 to 27 inches; yellowish brown (10YR 5/6) loam; common fine prominent strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; many faint dark yellowish brown (10YR 4/6) clay films on faces of peds; few fine roots; common dark concretions of iron and manganese oxide; 10 percent rock fragments; strongly acid; gradual irregular boundary.

Btx1—27 to 42 inches; yellowish brown (10YR 5/6) loam; many medium prominent gray (10YR 6/1) mottles; weak very coarse prismatic structure parting to weak medium and thick platy; very firm; many distinct yellowish brown (10YR 5/6) clay films on faces of peds; many dark concretions of iron and manganese oxide; very brittle prisms; 10 percent rock fragments; strongly acid; gradual irregular boundary.

Btx2—42 to 56 inches; yellowish brown (10YR 5/6) loam; many medium prominent gray (10YR 6/1) mottles; weak very coarse prismatic structure parting to weak medium and thick platy; very firm; many distinct yellowish brown (10YR 5/6) clay films on faces of peds; common dark concretions of iron and manganese oxide; very brittle prisms; 10 percent rock fragments; strongly acid; gradual irregular boundary.

BC—56 to 70 inches; yellowish brown (10YR 5/6) loam; common fine prominent gray (10YR 6/1) mottles; weak fine and medium subangular blocky structure; firm; few dark concretions of iron and manganese oxide; 10 percent rock fragments; strongly acid; gradual irregular boundary.

C—70 to 80 inches; yellowish brown (10YR 5/6) loam; common fine prominent gray (10YR 6/1) mottles; massive; friable; strongly acid; 10 percent rock fragments.

Range in Characteristics

Thickness of the solum: 60 to 90 inches
Depth to the fragipan: 16 to 33 inches
Thickness of the loess mantle: 0 to 16 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bt horizon—0 to 10 percent; Btx horizon—5 to 30 percent; C horizon—5 to 30 percent
Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 to 4
Texture—silt loam
Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 to 6
Texture—silt loam, loam, clay loam
Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—loam, clay loam, or, in the lower part, the gravelly analogs of those textures
BC and C horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 3 to 6
Texture—loam, clay loam, or the gravelly analogs of those textures

Huntington Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains

Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Nolin, Tioga

Taxonomic class: Fine-silty, mixed, mesic Fluventic Hapludolls

Typical Pedon

Huntington silt loam, rarely flooded; about 2.5 miles west of Warsaw, in Jefferson Township; about 1,000 feet west of the intersection of U.S. Route 36 and Township Road 340, along U.S. Route 36, then 600 feet south, T. 6 N., R. 8 W.

Ap—0 to 14 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; moderately acid; clear wavy boundary.
A—14 to 20 inches; dark brown (10YR 3/3) silt loam, dark grayish brown (10YR 4/2) dry; very dark brown (10YR 2/2) coatings on faces of peds; moderate medium subangular blocky structure parting to moderate medium granular; friable; moderately acid; clear wavy boundary.
Bw1—20 to 28 inches; dark yellowish brown (10YR 4/4) silt loam; dark brown (10YR 3/3) coatings on faces of peds; weak medium subangular blocky structure; friable; slightly acid; clear wavy boundary.
Bw2—28 to 42 inches; dark yellowish brown (10YR 4/4) very fine sandy loam; weak medium subangular blocky structure; friable; slightly acid; clear wavy boundary.
C1—42 to 50 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; friable; slightly acid; clear wavy boundary.
C2—50 to 80 inches; dark yellowish brown (10YR 4/4) stratified fine sandy loam and loamy fine sand; massive; friable; slightly acid;

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Content of rock fragments: Ap and A horizons—0 to 5 percent; Bw horizon—0 to 3 percent; C horizon—0 to 30 percent
Ap and A horizons:
Color—hue of 10YR, value of 2 or 3, chroma of 1 to 3.
Texture—silt loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 or 4
Texture—silt loam, very fine sandy loam
C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 or 4
Texture—stratified with dominant textures of silt loam to loamy fine sand or the gravelly analogs of those textures

Jimtown Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Parent material: Outwash
Landform: Terraces
Position on the landform: Depressions
Slope range: 0 to 2 percent
Commonly adjacent soils: Chili, Watertown

Taxonomic class: Fine-loamy, mixed, mesic Aeric Ochraqualfs

Typical Pedon

Jimtown loam, 0 to 2 percent slopes; about 0.5 mile west of Clark, in Clark Township; 1,600 feet southwest of the intersection of County Road 19 and Township Road 312, along County Road 19, then 300 feet south, T. 7 N., R. 7 W.

Ap—0 to 13 inches; dark brown (10YR 3/3) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few fine roots; 2 percent rock fragments; slightly acid; abrupt smooth boundary.
Bt—13 to 21 inches; brown (10YR 5/3) loam; many fine distinct grayish brown (2.5Y 5/2) coatings on faces of peds; many fine prominent strong brown (7.5YR 5/6) and common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; common distinct grayish brown (10YR 5/2) clay films on faces of peds; few fine roots; 5 percent rock fragments; common black concretions of iron and manganese oxide; slightly acid; clear smooth boundary.
Btg—21 to 28 inches; light brownish gray (2.5Y 6/2) loam; many fine prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct light brownish gray (2.5Y 6/2) clay films on faces of peds; few fine roots; 5 percent rock fragments; common black concretions of iron and manganese oxide; slightly acid; clear smooth boundary.
BC—28 to 43 inches; dark grayish brown (2.5Y 4/2) gravelly sandy loam; common medium prominent

strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; friable; few faint dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; 15 percent rock fragments; slightly acid; gradual wavy boundary.

Cg1—43 to 60 inches; olive gray (5Y 5/2) gravelly loamy sand; common medium prominent strong brown (7.5YR 5/6) mottles; single grain; loose; 30 percent rock fragments; strongly acid; gradual wavy boundary.

Cg2—60 to 80 inches; olive gray (5Y 5/2) very gravelly loamy sand; common medium prominent strong brown (7.5YR 5/6) mottles; single grain; loose; 40 percent rock fragments; neutral.

Range in Characteristics

Thickness of the solum: 25 to 48 inches

Content of rock fragments: Ap horizon—0 to 20 percent; Bt horizon—0 to 30 percent above a depth of 20 inches and 5 to 50 percent between depths of 20 and 40 inches; Cg horizon—15 to 50 percent

Ap horizon:

Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3

Texture—loam

Bt and Btg horizons:

Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 2 to 4

Texture—loam, clay loam, sandy clay loam, or the gravelly analogs of those textures

BC and Cg horizons and C horizon (if it occurs):

Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 1 to 4

Texture—the gravelly or very gravelly analogs of loamy sand, sandy loam, or sand

Keene Series

Depth class: Deep or very deep

Drainage class: Moderately well drained

Permeability: Moderate or moderately slow in the upper subsoil of the subsoil and moderately slow or slow in the lower part

Parent material: Loess over material weathered from interbedded siltstone and shale

Landform: Hills

Position on the landform: Summits, shoulders

Slope range: 2 to 15 percent

Commonly adjacent soils: Aaron, Coshocton, Guernsey, Westmoreland

Taxonomic class: Fine-silty, mixed, mesic Aquic Hapludalfs

Typical Pedon

Keene silt loam, 2 to 6 percent slopes; in an area of the North Appalachian Experimental Watershed, Agricultural Research Service, in Crawford Township; 150 feet north and 330 feet west of the southeast corner of sec. 25, T. 7 N., R. 5 W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; friable; many fine roots; few rock fragments; moderately acid; abrupt smooth boundary.

BE—9 to 12 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; many fine roots; very strongly acid; clear smooth boundary.

Bt1—12 to 15 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; few faint yellowish brown (10YR 5/4) clay films on faces of peds; common fine roots; very strongly acid; clear smooth boundary.

Bt2—15 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine roots; very strongly acid; clear smooth boundary.

2Bt3—20 to 25 inches; yellowish brown (10YR 5/6) silty clay loam; many medium distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; common dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine roots; 5 percent rock fragments; very strongly acid; clear smooth boundary.

2Bt4—25 to 39 inches; mixed yellowish brown (10YR 5/4) and gray (5Y 6/1) silty clay loam; many medium prominent strong brown (7.5YR 5/8) and common fine distinct light brownish gray (10YR 6/2) mottles; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common distinct pale brown (10YR 6/3) clay films on faces of peds; few fine roots; 10 percent rock fragments, which are less than 6 inches in length; very strongly acid; gradual smooth boundary.

2BC—39 to 52 inches; gray (10YR 6/1) channery silty clay loam; few fine prominent strong brown (7.5YR 5/8) mottles; weak medium angular and subangular blocky structure; very firm; few faint pale brown (10YR 6/3) clay films on vertical faces of peds; 25 percent rock fragments, which are less than 6 inches in length; very strongly acid; gradual smooth boundary.

2Cr—52 to 57 inches; gray (10YR 5/1) and yellowish brown (10YR 5/8), weathered shale.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 84 inches
Thickness of the loess mantle: 20 to 36 inches
Content of rock fragments: Ap and Bt horizons—0 to 5 percent; 2Bt horizon—5 to 15 percent; 2BC horizon—5 to 35 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam
Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam, silty clay loam
2Bt horizon:
Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 1 to 6
Texture—silty clay loam, silty clay
2BC horizon:
Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 1 to 4
Texture—silty clay loam, silty clay, clay, or the channery analogs of those textures

Landes Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Lobdell, Tioga

Taxonomic class: Coarse-loamy, mixed, mesic Fluventic Hapludolls

Typical Pedon

Landes loam, occasionally flooded; about 6 miles northwest of Coshocton, in Bethlehem Township; about 1,800 feet north of the intersection of State Route 60 and U.S. Route 36, along State Route 60, then 2,400 feet east, T. 6 N., R. 7 W.

Ap—0 to 10 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common fine black (10YR 2/1) coatings on surfaces of peds; few fine and medium roots; slightly acid; abrupt smooth boundary.

A—10 to 18 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; friable; very dark grayish brown (10YR 3/2) coatings on surfaces of peds; few fine roots; slightly acid; clear smooth boundary.

BA—18 to 23 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak medium subangular blocky structure; friable; many medium very dark grayish brown (10YR 3/2) coatings on surfaces of peds; few fine roots; slightly acid; clear wavy boundary.

Bw—23 to 34 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak fine subangular blocky structure; friable; few fine roots; slightly acid; clear wavy boundary.

C1—34 to 60 inches; brown (10YR 5/3) loamy fine sand; common medium distinct dark yellowish brown (10YR 4/6) mottles; single grain; loose; slightly acid; clear wavy boundary.

C2—60 to 80 inches; brown (10YR 5/3) loamy sand; common medium distinct dark yellowish brown (10YR 4/6) mottles; single grain; loose; strongly acid.

Range in Characteristics

Thickness of the solum: 22 to 40 inches
Thickness of the mollic epipedon: 10 to 20 inches
Content of rock fragments: Ap and A horizons—0 to 5 percent; Bw horizon—0 to 10 percent; C horizon—0 to 10 percent
Ap and A horizons:
Color—hue of 10YR, value of 2 or 3, chroma of 1 to 3
Texture—loam, sandy loam
Bw horizon:
Color—hue of 10YR, value of 3 to 6, chroma of 3 or 4
Texture—loamy fine sand, fine sandy loam, very fine sandy loam
C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 or 4
Texture—loamy fine sand, loamy sand, sand, fine sandy loam, silt loam

Lobdell Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent

Commonly adjacent soils: Orrville, Tioga

Taxonomic class: Fine-loamy, mixed, mesic Fluvaquentic Eutrochrepts

Typical Pedon

Lobdell silt loam, occasionally flooded; about 1.5 miles west of West Lafayette, in Lafayette Township; 400 feet east of the intersection of County Road 16 and Township Road 165, along County Road 16, then 50 feet south, T. 5 N., R. 5 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; few fine roots; strongly acid; clear smooth boundary.

Bw1—9 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

Bw2—17 to 25 inches; dark yellowish brown (10YR 4/4) loam; common fine distinct grayish brown (10YR 5/2) and few fine distinct dark brown (7.5YR 4/4) mottles; weak fine subangular blocky structure; friable; few dark concretions of iron and manganese oxide; few fine roots; strongly acid; clear smooth boundary.

Bw3—25 to 38 inches; brown (10YR 5/3) loam; common fine distinct grayish brown (10YR 5/2) and few fine distinct dark brown (7.5YR 4/4) mottles; weak medium subangular blocky structure; friable; few dark concretions of iron and manganese oxide; few fine roots; strongly acid; clear smooth boundary.

BC—38 to 47 inches; grayish brown (2.5Y 5/2) silt loam; common fine faint gray (10YR 6/1) and common fine distinct dark brown (7.5YR 4/4) mottles; weak medium prismatic structure; friable; few dark concretions of iron and manganese oxide; few fine roots; strongly acid; clear smooth boundary.

Cg1—47 to 67 inches; grayish brown (2.5Y 5/2) silt loam; common fine faint gray (10YR 6/1) and many fine distinct dark brown (7.5YR 4/4) mottles; massive; friable; few dark concretions of iron and manganese oxide; strongly acid; clear smooth boundary.

Cg2—67 to 80 inches; grayish brown (2.5Y 5/2) loam; common fine faint gray (10YR 6/1) and many fine distinct dark brown (7.5YR 4/4) mottles; massive; friable; few dark concretions of iron and manganese oxide; strongly acid.

Range in Characteristics

Thickness of the solum: 24 to 50 inches

Content of rock fragments: Ap horizon—0 to 5 percent; B horizon—0 to 15 percent; Cg horizon—0 to 15 percent

Ap horizon:
- Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
- Texture—silt loam

Bw horizon:
- Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4
- Texture—silt loam, loam, and, in some pedons, thin horizons of sandy loam

BC or C horizon (if it occurs):
- Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 1 to 8
- Texture—silt loam, loam, and, in some pedons, stratified layers of sandy loam or loamy sand below a depth of 40 inches

Loudon Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Loess over glacial till underlain by material weathered from interbedded shale and siltstone
Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 2 to 15 percent
Commonly adjacent soils: Homewood, Titusville

Taxonomic class: Fine, mixed, mesic Aquic Hapludalfs

Taxadjunct statement: The Loudon soils in this county have less clay in the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use or management of the soils.

Typical Pedon

Loudon silt loam, 6 to 15 percent slopes; about 1.5 miles northwest of New Guilford, in Perry Township; about 1,200 feet east and 400 feet south of the northwest corner of sec. 6, T. 5 N., R. 9 W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; common fine roots; 2 percent rock fragments; strongly acid; abrupt wavy boundary.

BE—8 to 15 inches; dark yellowish brown (10YR 4/6) silt loam; weak fine subangular blocky structure; friable; few fine roots; 2 percent rock fragments; strongly acid; clear wavy boundary.

2Bt1—15 to 22 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; friable; few faint brown (10YR 5/3) clay films on faces of peds; few fine roots; 2 percent rock fragments; strongly acid; gradual wavy boundary.

2Bt2—22 to 34 inches; yellowish brown (10YR 5/6) clay loam; common fine distinct grayish brown (10YR 5/2) mottles; moderate medium subangular blocky structure; firm; common distinct brown (10YR 5/3) clay films on faces of peds; few fine roots; 5 percent rock fragments; strongly acid; gradual wavy boundary.

2Bt3—34 to 40 inches; yellowish brown (10YR 5/6) clay loam; many medium prominent grayish brown (2.5Y 5/2) and few fine prominent strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; firm; common distinct brown (10YR 5/3) clay films on faces of peds; few fine roots; 10 percent rock fragments; moderately acid; gradual wavy boundary.

3BC—40 to 50 inches; yellowish brown (10YR 5/4) silty clay; few medium distinct grayish brown (10YR 5/2) and few medium prominent strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure; firm; 10 percent rock fragments; neutral; gradual wavy boundary.

3C1—50 to 60 inches; yellowish brown (10YR 5/6) silty clay; many fine distinct grayish brown (10YR 5/2) and few fine prominent strong brown (7.5YR 5/6) mottles; massive; firm; 10 percent rock fragments; violent effervescence; mildly alkaline; gradual wavy boundary.

3C2—60 to 80 inches; yellowish brown (10YR 5/6) silty clay; many medium prominent light gray (10YR 6/1) and few fine prominent strong brown (7.5YR 5/6) mottles; massive; firm; 10 percent rock fragments; violent effervescence; mildly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to bedrock: 40 to 84 inches
Depth to carbonates: 32 to 65 inches
Thickness of the loess mantle: 10 to 24 inches
Content of rock fragments: Ap and BE horizons—0 to 2 percent; 2Bt horizon—2 to 15 percent; 3C horizon—0 to 15 percent
Additional features: Bt horizon in some pedons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam

BE or Bt horizon (if it occurs):
Color—hue of 10YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, silty clay loam

2Bt horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 3 to 6
Texture—clay loam, clay, silty clay loam

3BC and 3C horizons:
Color—hue of 10YR, 2.5Y, or 5Y; value of 5 or 6; chroma of 1 to 6
Texture—silty clay, clay, silty clay loam

Loudonville Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Glacial till over material weathered from interbedded sandstone and siltstone
Landform: Glaciated hills
Position on the landform: Summits, shoulders, backslopes
Slope range: 6 to 20 percent
Commonly adjacent soils: Homewood, Titusville

Taxonomic class: Fine-loamy, mixed, mesic Ultic Hapludalfs

Typical Pedon

Loudonville silt loam, 6 to 15 percent slopes; in New Castle Township; 0.6 mile south of the intersection of U.S. Route 36 and County Road 367, along County Road 367, then 3,300 feet west, T. 6 N., R. 9 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; common fine roots; about 5 percent rock fragments; moderately acid; abrupt smooth boundary.

Bt1—9 to 17 inches; strong brown (7.5YR 5/6) loam; moderate fine and medium subangular blocky structure; firm; common strong brown (7.5YR 5/6) clay films on faces of peds; few fine roots; about 10 percent rock fragments, of which 2 percent is rounded sandstone fragments; strongly acid; clear smooth boundary.

Bt2—17 to 25 inches; strong brown (7.5YR 5/6) loam; moderate fine and medium subangular blocky structure; firm; common strong brown (7.5YR 5/6) clay films on faces of peds; few fine roots; about 10 percent rock fragments; strongly acid; clear wavy boundary.

2BC—25 to 32 inches; strong brown (7.5YR 5/6) very channery silt loam; weak coarse subangular blocky structure; firm; about 50 percent rock fragments; strongly acid; clear wavy boundary.

2R—32 to 34 inches; light olive brown (2.5Y 5/4) interbedded sandstone and siltstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bt horizon—2 to 25 percent; 2BC horizon—10 to 60 percent
Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 or 3
Texture—silt loam
Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—loam, clay loam, or the gravelly analogs of those textures
2BC horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—the channery or very channery analogs of loam, sandy loam, or silt loam

Markland Series

Depth class: Very deep
Drainage class: Moderately well drained or well drained
Permeability: Slow
Parent material: Lacustrine sediments
Landform: Slackwater terraces and terrace escarpments
Position on the landform: Treads, risers, drainageways
Slope range: 2 to 35 percent
Commonly adjacent soils: Glenford, Mentor

Taxonomic class: Fine, mixed, mesic Typic Hapludalfs

Typical Pedon

Markland silt loam, 2 to 6 percent slopes; about 3 miles southeast of Plainfield, in Linton Township; about 5,000 feet south of the junction of State Route 541 and County Road 108, along County Road 108, then 600 feet east, T. 4 N., R. 5 W.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine granular structure; friable; common fine and medium roots; moderately acid; abrupt smooth boundary.

BA—8 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common fine and medium roots; slightly acid; clear smooth boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/6) silty clay loam; common fine distinct strong brown (7.5YR 5/8) and few fine distinct brown (10YR 5/3) mottles; moderate medium subangular blocky structure; firm; many faint dark yellowish brown (10YR 4/6) clay films on vertical faces of peds; common fine and medium roots; strongly acid; clear smooth boundary.

2Bt2—18 to 27 inches; brown (7.5YR 4/4) silty clay; common fine distinct strong brown (7.5YR 5/8) and few fine distinct brown (10YR 5/3) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many prominent light yellowish brown (10YR 6/4) clay films on vertical faces of peds; few fine roots; strongly acid; clear wavy boundary.

2Bt3—27 to 43 inches; brown (7.5YR 4/4) silty clay; many fine distinct strong brown (7.5YR 5/8) and common fine prominent grayish brown (10YR 5/2) mottles; moderate medium prismatic structure parting to strong coarse subangular blocky; firm; many prominent light yellowish brown (10YR 6/4) clay films on vertical faces of peds; few fine roots; moderately acid; clear wavy boundary.

2C1—43 to 49 inches; grayish brown (10YR 5/2) silty clay; common fine prominent yellowish brown (10YR 5/6) mottles; massive; firm; common medium secondary carbonate concretions; strong effervescence; moderately alkaline; clear smooth boundary.

2C2—49 to 80 inches; light olive brown (2.5Y 5/4) stratified silty clay to fine sandy loam; common fine prominent grayish brown (10YR 5/2), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) mottles; massive; firm; strong effervescence; mildly alkaline.

Range in Characteristics

Thickness of the solum: 20 to 45 inches
Depth to carbonates: 20 to 45 inches
Thickness of the loess mantle: 10 to 18 inches
Content of rock fragments: Solum—generally none; C horizon—0 to 5 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 to 4
Texture—silt loam
Bt and 2Bt horizons:
Color—hue of 2.5Y, 10YR, or 7.5YR; value of 4 or 5; chroma of 3 to 6
Texture—silty clay loam in the Bt horizon; silty clay or clay in the 2Bt horizon

2C horizon:
Color—hue of 2.5Y or 10YR, value of 4 to 6, chroma of 2 to 6
Texture—stratified silty clay to fine sandy loam

Melvin Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Coshocton, Newark, Orrville

Taxonomic class: Fine-silty, mixed, nonacid, mesic Typic Fluvaquents

Typical Pedon

Melvin silt loam, frequently flooded; about 3.25 miles south of Warsaw, in Bedford Township; 400 feet south of the intersection of County Road 17 and Township Road 400, then 25 feet east, T. 5 N., R. 8 W.

A—0 to 7 inches; dark grayish brown (2.5Y 4/2) silt loam, light brownish gray (2.5Y 6/2) dry; common fine prominent gray (5Y 5/1) and dark red (2.5YR 3/6) mottles; weak medium granular structure; friable; common fine roots; slightly acid; clear smooth boundary.
Bg1—7 to 20 inches; olive gray (5Y 5/2) silt loam; common medium prominent yellowish red (5YR 5/6) mottles; weak coarse subangular blocky structure; friable; few fine roots; slightly acid; clear wavy boundary.
Bg2—20 to 30 inches; olive gray (5Y 5/2) silt loam; common medium prominent yellowish red (5YR 5/6) and common medium faint gray (5Y 5/1) mottles; weak coarse subangular blocky structure; friable; few fine roots; moderately acid; clear wavy boundary.
Cg—30 to 80 inches; gray (5Y 5/1) silt loam; massive; friable; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Content of coarse fragments: A horizon—0 to 5 percent; Bg horizon—0 to 5 percent; Cg horizon—0 to 5 percent in the upper part of the horizon and 0 to 20 percent below a depth of 30 inches
A horizon:
Color—hue of 10YR or 2.5Y, value of 4, chroma of 1 or 2
Texture—silt loam
Bg horizon:
Color—hue of 2.5Y or 5Y or is neutral; value of 4 to 7; chroma of 0 to 2
Texture—silt loam, silty clay loam
Cg horizon:
Color—hue of 2.5Y or 5Y or is neutral; value of 4 to 7; chroma of 0 to 2
Texture—silt loam, silty clay loam, or loam; thin strata of sandy loam or loamy sand or the gravelly analogs of those textures below a depth of 30 inches

Mentor Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Lacustrine sediments
Landform: Slackwater terraces
Position on the landform: Treads, risers, drainageways
Slope range: 0 to 25 percent
Commonly adjacent soils: Glenford

Taxonomic class: Fine-silty, mixed, mesic Typic Hapludalfs

Typical Pedon

Mentor silt loam, 0 to 2 percent slopes; about 0.5 mile northeast of Plainfield, in Linton Township; 400 feet north and 2,300 feet west of the southeast corner of sec. 5, T. 4 N., R. 4 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; mixed with some streaks and pockets of dark yellowish brown (10YR 4/6) subsoil material; weak fine granular structure; friable; few fine roots; slightly acid; abrupt smooth boundary.
Bt1—10 to 17 inches; dark yellowish brown (10YR 4/6) silt loam; very dark grayish brown (10YR 3/2) organic stains in root channels; moderate fine subangular blocky structure; friable; many dark yellowish brown (10YR 4/4) clay films on vertical faces of peds; few fine roots; moderately acid; clear smooth boundary.
Bt2—17 to 27 inches; dark yellowish brown (10YR 4/6) silty clay loam; very dark grayish brown (10YR 3/2) organic stains in root channels; moderate medium subangular blocky structure; friable; many faint dark yellowish brown (10YR 4/4) clay films on vertical faces of peds; few fine roots; strongly acid; clear smooth boundary.
Bt3—27 to 37 inches; dark yellowish brown (10YR 4/6) silt loam; common fine distinct strong brown

(7.5YR 5/6) and few fine faint pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; very strongly acid; clear smooth boundary.

BC—37 to 50 inches; dark yellowish brown (10YR 4/6) silt loam; common fine distinct strong brown (7.5YR 5/6) and few fine faint pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; friable; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; strongly acid; clear smooth boundary.

C—50 to 80 inches; brown (10YR 5/3) and strong brown (7.5YR 4/6) stratified fine sandy loam and silt loam; massive; friable; common dark concretions of iron and manganese oxide; strongly acid.

Range in Characteristics

Thickness of the solum: 36 to 60 inches

Content of rock fragments: Ap, Bt, and C horizons—0 to 2 percent within a depth of 50 inches and 0 to 5 percent below a depth of 50 inches

Ap horizon:

Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3

Texture—silt loam

Bt and BC horizons:

Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6

Texture—silt loam, silty clay loam

C horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6

Texture—stratified with dominant textures of silt loam, fine sandy loam, and sandy loam

Newark Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderate

Parent material: Alluvium

Landform: Flood plains

Position on the landform: Steps on flood plains

Slope range: 0 to 2 percent

Commonly adjacent soils: Fitchville, Glenford, Melvin

Taxonomic class: Fine-silty, mixed, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Newark silt loam, frequently flooded; about 760 feet southeast of Layland, in Clark Township; 900 feet east of the intersection of State Route 60 and Township Road 490, along State Route 60, then 300 feet south, T. 7 N., R. 7 W.

Ap—0 to 10 inches; dark grayish brown (2.5Y 4/2) silt loam, light yellowish brown (2.5Y 6/3) dry; moderate medium granular structure; friable; few fine roots; slightly acid; clear smooth boundary.

AB—10 to 16 inches; brown (10YR 4/3) silt loam; few fine faint dark grayish brown (10YR 4/2) mottles; moderate medium prismatic structure parting to moderate fine subangular blocky; friable; few fine roots; slightly acid; clear wavy boundary.

Bg1—16 to 24 inches; dark grayish brown (10YR 4/2) silt loam; common medium faint olive brown (2.5Y 4/4) and common fine prominent strong brown (7.5YR 5/6) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; moderately acid; clear wavy boundary.

Bg2—24 to 32 inches; light brownish gray (10YR 6/2) silt loam; many medium distinct light gray to gray (10YR 6/1), common fine distinct strong brown (7.5YR 5/6), and few fine faint brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; common dark concretions of iron and manganese oxide and wormcasts; moderately acid; clear wavy boundary.

C—32 to 80 inches; strong brown (7.5YR 4/4) stratified fine sandy loam and silt loam; many medium prominent grayish brown (10YR 5/2) and few fine distinct yellowish brown (10YR 5/6) mottles; massive; friable; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 44 inches

Content of rock fragments: Ap horizon—0 to 5 percent; Bg horizon—0 to 5 percent; Cg horizon (if it occurs)—0 to 15 percent

Additional features: Bw or Cg horizon in some pedons

Ap horizon:

Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 2 or 3

Texture—silt loam

Bg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 7, chroma of 0 to 2

Texture—silt loam

Bw horizon (if it occurs):

Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4

Texture—silt loam

C or Cg horizon (if it occurs):
Color—hue of 10YR, 2.5Y, or 7.5YR; value of 4 to 7; chroma of 0 to 4
Texture—stratified with dominant textures of silt loam, loam, and fine sandy loam

Nolin Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Lobdell, Tioga

Taxonomic class: Fine-silty, mixed, mesic Dystric Fluventic Eutrochrepts

Typical Pedon

Nolin silt loam, occasionally flooded; about 0.5 mile northwest of Cavallo, in Tiverton Township; about 1,900 feet south and 1,250 feet east of the northwest corner of sec. 15, T. 7 N., R. 9 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to weak fine and medium granular; friable; few fine roots; moderately acid; abrupt smooth boundary.
Bw1—10 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; brown (10YR 4/3) organic coatings on faces of peds; common dark grayish brown (10YR 4/2) worm krotovinas; weak fine subangular blocky structure; friable; few fine roots; moderately acid; clear wavy boundary.
Bw2—20 to 32 inches; dark yellowish brown (10YR 4/4) silt loam; brown (10YR 4/3) organic coatings on faces of peds; common dark grayish brown (10YR 4/2) worm krotovinas; weak fine and medium subangular blocky structure; friable; few fine roots; moderately acid; clear wavy boundary.
Bw3—32 to 44 inches; brown (10YR 4/4) silt loam; dark yellowish brown (10YR 4/4) organic coatings on faces of peds; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.
C1—44 to 58 inches; dark yellowish brown (10YR 4/6) loam; massive; friable; very strongly acid; clear smooth boundary.
C2—58 to 80 inches; dark yellowish brown (10YR 4/6) sandy loam; massive; friable; 10 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 50 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bw horizon—0 to 5 percent; C horizon—0 to 35 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam
Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 or 4
Texture—silt loam
C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 2 to 6
Texture—stratified layers of sandy loam, silt loam, loam, fine sandy loam, or the gravelly analogs of those textures

Orrville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Brownsville, Coshocton, Lobdell, Melvin, Tioga

Taxonomic class: Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Orrville silt loam, occasionally flooded; about 1 mile west of West Lafayette, in Lafayette Township; 1,200 feet west of the intersection of County Road 16 and Township Road 166, along County Road 16, then 2,000 feet north, T. 5 N., R. 5 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; few fine roots; strongly acid; clear smooth boundary.
Bw—10 to 18 inches; dark yellowish brown (10YR 4/4) silt loam; common fine faint grayish brown (2.5Y 5/2) and few fine distinct strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; strongly acid; clear smooth boundary.
Bg1—18 to 30 inches; grayish brown (2.5Y 5/2) loam

with thin layers of sandy loam near the lower boundary of the horizon; few brown (10YR 5/3) wormcasts; many fine faint dark grayish brown (2.5Y 4/2) and few fine prominent strong brown (7.5YR 4/6) mottles; weak fine and medium subangular blocky structure; friable; few fine roots; common dark concretions of iron and manganese oxide; strongly acid; clear wavy boundary.

Bg2—30 to 40 inches; grayish brown (10YR 5/2) silty clay loam that has pockets of sand and silty clay; common fine faint yellowish brown (10YR 5/4) and few fine faint strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

Bg3—40 to 48 inches; gray (10YR 5/1) silty clay loam; common medium faint yellowish brown (10YR 5/4), few fine distinct dark yellowish brown (10YR 4/6), and few fine prominent yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; firm; moderately acid; gradual wavy boundary.

Cg—48 to 80 inches; gray (10YR 5/1) loamy sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; strongly acid.

Range in Characteristics

Thickness of the solum: 24 to 50 inches
Content of rock fragments: Ap horizon—0 to 5 percent; B horizon—0 to 15 percent; C horizon—0 to 25 percent
Additional features: C horizon in some pedons
Ap horizon:
Color—hue of 10YR or 2.5Y, value of 4, chroma of 2
Texture—silt loam
Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 6
Texture—silt loam, loam
Bg horizon:
Color—hue of 10YR, 2.5Y, or 5Y or is neutral; value of 4 to 6; chroma of 0 to 2
Texture—loam, silt loam, silty clay loam
C horizon (if it occurs) or Cg horizon:
Color—hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; chroma of 1 to 6
Texture—silt loam, sandy loam, loam, or the gravelly analogs of those textures; loamy sand or gravelly loamy sand included in the range of textures below a depth of 40 inches

Richland Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Colluvium
Landform: Hills
Position on the landform: Footslopes
Slope range: 6 to 25 percent
Commonly adjacent soils: Brownsville, Orrville

Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludalfs

Typical Pedon

Richland silt loam, 15 to 25 percent slopes; in Tiverton Township; 200 feet north of the intersection of Township Road 356 and Township Road 357, T. 7 N., R. 9 W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common fine roots; 10 percent rock fragments; strongly acid; abrupt wavy boundary.

BE—5 to 9 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; very friable; common fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.

Bt1—9 to 18 inches; brown (7.5YR 5/4) channery silt loam; moderate fine subangular blocky structure; very friable; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; 20 percent rock fragments; strongly acid; clear wavy boundary.

Bt2—18 to 30 inches; brown (7.5YR 5/4) channery loam; moderate fine subangular blocky structure; very friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; 30 percent rock fragments; moderately acid; clear wavy boundary.

BC—30 to 50 inches; yellowish brown (10YR 5/4) very channery loam; weak fine subangular blocky structure; very friable; few faint dark yellowish brown (10YR 4/4) clay coatings; few fine roots; 50 percent rock fragments; moderately acid; clear wavy boundary.

C—50 to 80 inches; dark yellowish brown (10YR 4/4) very channery loam; massive; very friable; 50 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 44 to 60 inches
Content of rock fragments: Ap horizon—5 to 20 percent; Bt horizon—5 to 20 percent in the upper

part of the horizon and 20 to 35 percent in the lower part; C horizon—20 to 55 percent

Ap horizon:

Color—hue of 10YR, value of 3 or 4, chroma of 2 to 4

Texture—silt loam

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6

Texture—loam, silt loam, silty clay loam, or the channery analogs of those textures

BC and C horizons:

Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 4 to 6

Texture—channery, very channery, flaggy, or very flaggy loam

Rigley Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Sandstone residuum
Landform: Hills
Position on the landform: Summits, shoulders, backslopes, footslopes
Slope range: 6 to 35 percent
Commonly adjacent soils: Coshocton, Westmoreland

Taxonomic class: Coarse-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Rigley sandy loam, 15 to 25 percent slopes; about 1 mile southeast of Tiverton Center, in Tiverton Township; 6,600 feet southeast of the intersection of State Route 206 and Township Road 358, along State Route 206, then 800 feet north, T. 7 N., R. 9 W.

Ap—0 to 7 inches; brown (10YR 4/3) sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many fine and medium roots; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.

BA—7 to 10 inches; brown (10YR 5/3) fine sandy loam; weak medium platy structure; very friable; many fine and common medium roots; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bt1—10 to 22 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few faint yellowish brown (10YR 5/6) clay films on faces of peds; common fine roots; 10 percent rock fragments; very strongly acid; clear irregular boundary.

Bt2—22 to 31 inches; strong brown (7.5YR 5/6) channery loam; moderate medium subangular blocky structure; firm; common distinct dark brown (7.5YR 4/4) clay films on faces of peds; common fine roots; 30 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—31 to 44 inches; strong brown (7.5YR 5/6) channery sandy loam; weak coarse subangular blocky structure; friable; common distinct dark brown (7.5YR 4/4) clay films on faces of peds; few fine roots; 20 percent rock fragments; very strongly acid; clear wavy boundary.

BC—44 to 57 inches; light yellowish brown (10YR 6/4) very channery sandy loam; weak coarse subangular blocky structure; very friable; few distinct strong brown (7.5YR 5/6) patchy areas of clay accumulation; few fine roots; 35 percent rock fragments; very strongly acid; gradual wavy boundary.

C—57 to 70 inches; light yellowish brown (10YR 6/4) very channery loamy sand; single grain; loose; 45 percent rock fragments; very strongly acid; clear wavy boundary.

Cr—70 to 75 inches; light yellowish brown (10YR 6/4), weathered sandstone.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Content of rock fragments: Ap horizon—5 to 35 percent; Bt horizon—5 to 35 percent; C horizon—20 to 70 percent
Additional features: E horizon in some pedons

A horizon (if it occurs):

Color—hue of 10YR, value of 4, chroma of 3 or 4

Texture—sandy loam

Ap horizon:

Color—hue of 10YR, value of 3, chroma of 2 or 3

Texture—sandy loam, loam, or the channery analogs of those textures

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 4 to 8

Texture—sandy loam, loam, or the channery analogs of those textures

BC and C horizons:

Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 4 to 8

Texture—the channery, very channery, or extremely channery analogs of loamy sand or sandy loam

Sebring Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Parent material: Lacustrine sediments
Landform: Slackwater terraces
Position on the landform: Closed depressions
Slope range: 0 to 2 percent
Commonly adjacent soils: Fitchville

Taxonomic class: Fine-silty, mixed, mesic Typic Ochraqualfs

Typical Pedon

Sebring silt loam; in Oxford Township; about 4.5 miles east of West Lafayette from the junction of County Road 9 and Township Road 257, 1,300 feet south on a farm lane, 50 feet east, T. 5 N., R. 4 W.

Ap—0 to 7 inches; grayish brown (10YR 5/2) silt loam, light gray (2.5Y 7/2) dry; weak fine granular structure; friable; many fine roots; slightly acid; clear smooth boundary.

Btg1—7 to 13 inches; gray (10YR 5/1) silty clay loam; common medium faint dark gray (10YR 4/1) and common medium distinct dark brown (7.5YR 3/4) mottles; weak fine subangular blocky structure; friable; few faint gray (10YR 5/1) clay films on faces of peds; common fine roots; slightly acid; abrupt smooth boundary.

Btg2—13 to 21 inches; grayish brown (2.5Y 5/2) silty clay loam; common medium distinct strong brown (7.5YR 5/6), common fine faint gray (10YR 5/1), and few fine faint dark yellowish brown (10YR 5/4) mottles; moderate fine subangular blocky structure; firm; common fine brown (10YR 5/3) clay films on faces of peds; few fine roots; few dark concretions of iron and manganese oxide; strongly acid; clear smooth boundary.

Btg3—21 to 33 inches; light brownish gray (10YR 6/2) silty clay loam; common fine faint gray (10YR 6/1) and common fine distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) mottles; weak medium prismatic structure parting to weak fine subangular blocky; firm; few fine brown (10YR 5/3) clay films on faces of peds; few fine roots; few dark concretions of iron and manganese oxide; strongly acid; clear smooth boundary.

BC—33 to 48 inches; light brownish gray (10YR 6/2) silt loam; few medium distinct gray (N 5/0) and many medium prominent brown (7.5YR 5/4) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few dark concretions of iron and manganese oxide; few strata of fine sand; very strongly acid; clear wavy boundary.

Cg—48 to 80 inches; light brownish gray (10YR 6/2) stratified silt loam, silty clay loam, loam, and silty clay; few fine distinct gray (N 5/0) and many medium prominent strong brown (7.5YR 5/6) mottles; massive; friable; few dark concretions of iron and manganese oxide; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 55 inches
Content of rock fragments: Cg horizon—0 to 5 percent
Additional features: C horizon in some pedons
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 1 or 2
Texture—silt loam
Btg and BC horizons:
Color—hue of 10YR, 2.5Y, or 5Y or is neutral; value of 4 to 6; chroma of 0 to 2
Texture—silty clay loam, silt loam
C horizon (if it occurs) or Cg horizon:
Color—hue of 10YR, 2.5Y, or 5Y or is neutral; value of 4 to 6; chroma of 0 to 6
Texture—stratified with dominant textures of silt loam, silty clay loam, and thin layers of loam and silty clay

Tioga Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the solum and moderate to rapid in the substratum
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Lobdell, Nolin, Wappinger

Taxonomic class: Coarse-loamy, mixed, mesic Dystric Fluventic Eutrochrepts

Typical Pedon

Tioga fine sandy loam, rarely flooded; about 3.5 miles east of West Lafayette, in Oxford Township; 300 feet east of the intersection of State Route 751 and County Road 254, along County Road 254, then 340 feet south, T. 5 N., R. 4 W.

Ap—0 to 11 inches; brown (10YR 4/3) fine sandy loam, pale brown (10YR 6/3) dry; dark grayish brown (10YR 4/2) organic coatings on faces of peds; weak medium granular structure; very friable; many fine roots; few rock fragments; neutral; abrupt smooth boundary.

Bw—11 to 26 inches; brown (7.5YR 4/4) fine sandy loam; few dark grayish brown (10YR 4/2) organic coatings on faces of peds; weak coarse subangular blocky structure; very friable; common fine and medium roots; few rock fragments; neutral; gradual smooth boundary.

BC—26 to 36 inches; brown (7.5YR 5/4) fine sandy loam; weak very coarse subangular blocky structure; very friable; few fine roots; neutral; clear wavy boundary.

C1—36 to 48 inches; yellowish brown (10YR 5/4) stratified fine sandy loam and loamy fine sand; massive; very friable; slightly acid; clear wavy boundary.

C2—48 to 80 inches; yellowish brown (10YR 5/4) stratified loamy fine sand and sandy loam; single grain; loose; 5 percent rock fragments; slightly acid.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Content of rock fragments: Ap horizon—0 to 35 percent; Bw horizon—0 to 35 percent; C horizon—0 to 60 percent
Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, chroma of 2 to 4
Texture—fine sandy loam
Bw and BC horizons:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 or 4
Texture—silt loam, loam, fine sandy loam, sandy loam, loamy sand, or the gravelly analogs of those textures
C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 2 to 4
Texture—stratified with dominant textures of sandy loam, fine sandy loam, loamy fine sand, loamy sand, or the gravelly or very gravelly analogs of those textures

Titusville Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Glacial till
Landform: Glaciated hills
Position on the landform: Summits, shoulders
Slope range: 2 to 15 percent
Commonly adjacent soils: Homewood, Loudon
Taxonomic class: Fine-loamy, mixed, mesic Aquic Fragiudalfs

Typical Pedon

Titusville silt loam, 2 to 6 percent slopes; about 2 miles south of New Castle, in Perry Township; about 1,700 feet south and 50 feet west of the northeast corner of sec. 5, T. 5 N., R. 9 W.

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure parting to weak fine granular; friable; common fine distinct very dark grayish brown (10YR 3/2) organic stains; common fine roots; few pebbles; moderately acid; abrupt smooth boundary.

BE—9 to 13 inches; yellowish brown (10YR 5/6) silt loam; weak thick platy structure parting to weak fine subangular blocky; friable; common medium distinct tonguing of brown (10YR 5/3) silt loam; common fine roots; few pebbles; moderately acid; clear wavy boundary.

Bt1—13 to 19 inches; yellowish brown (10YR 5/6) silty clay loam; few fine distinct strong brown (7.5YR 4/4) mottles; moderate fine subangular blocky structure; firm; many fine dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; 5 percent gravel; strongly acid; clear wavy boundary.

Bt2—19 to 26 inches; yellowish brown (10YR 5/6) clay loam; many medium distinct light brownish gray (10YR 6/2), few medium prominent gray (10YR 5/1), and common fine distinct strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; firm; many fine brown (10YR 5/3) clay films on faces of peds; few fine roots; 5 percent gravel; extremely acid; clear wavy boundary.

Btx1—26 to 34 inches; strong brown (7.5YR 5/6) clay loam; many medium distinct light brownish gray (10YR 6/2), common medium faint yellowish brown (10YR 5/4), and few fine prominent reddish brown (5YR 4/4) mottles; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm, 80 percent brittle; common fine gray (10YR 5/1) and brown (10YR 5/3) clay films on vertical faces of prisms; few dark concretions of iron and manganese oxide; 5 percent gravel; very strongly acid; gradual wavy boundary.

Btx2—34 to 42 inches; yellowish brown (10YR 5/6) loam; common medium distinct reddish brown (5YR 4/4) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; very firm, 70 percent brittle; common fine gray (10YR 5/1) clay films on vertical surfaces of peds; few dark concretions of iron and manganese oxide; 5 percent gravel; very strongly acid; gradual wavy boundary.

BC1—42 to 56 inches; yellowish brown (10YR 5/6) clay loam; common medium distinct light brownish gray (10YR 6/2) and few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; very firm, 30 percent brittle in the upper part; 5 percent gravel; very strongly acid; clear wavy boundary.

BC2—56 to 70 inches; yellowish brown (10YR 5/6) clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; common dark concretions of iron and manganese oxide; 5 percent gravel; very strongly acid; clear wavy boundary.

C—70 to 80 inches; dark yellowish brown (10YR 4/4) clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; massive; firm; common dark concretions of iron and manganese oxide; 5 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 50 to 100 inches
Depth to the fragipan: 16 to 28 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bt, Btx, and BC horizons—5 to 20 percent; C horizon—5 to 35 percent
Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam
Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 3 to 6
Texture—clay loam, loam, silty clay loam, or the gravelly analogs of those textures
Btx and BC horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 2 to 6; chroma of 2 to 6
Texture—clay loam, loam, or the gravelly analogs of those textures
C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 2 to 6; chroma of 2 to 6
Texture—clay loam, loam, or the gravelly analogs of those textures

Wappinger Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the subsoil and moderately rapid or rapid in the substratum
Parent material: Alluvium
Landform: Flood plains
Position on the landform: Steps on flood plains
Slope range: 0 to 2 percent
Commonly adjacent soils: Tioga, Nolin

Taxonomic class: Coarse-loamy over sandy or sandy skeletal, mixed, mesic Dystric Fluventic Eutrochrepts

Typical Pedon

Wappinger sandy loam, rarely flooded; about 1.5 miles northwest of West Lafayette, in Lafayette Township; 2,600 feet east of the intersection of State Route 36 and County Road 116, along State Route 36, then 1,360 feet south, T. 5 N., R. 4 W.

Ap—0 to 8 inches; brown (10YR 4/3) sandy loam, pale brown (10YR 6/3) dry; dark brown (10YR 3/3) organic coatings on faces of peds; weak fine granular structure; very friable; few fine roots; about 5 percent rock fragments; strongly acid; clear smooth boundary.

Bw1—8 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; few dark yellowish brown (10YR 3/4) organic coatings on faces of peds; weak fine subangular blocky structure; friable; common yellowish brown (10YR 5/6) 1- or 2-inch lenses of loamy sand; few fine roots; strongly acid; gradual smooth boundary.

Bw2—17 to 26 inches; yellowish brown (10YR 5/4) silt loam; few dark yellowish brown (10YR 3/4) organic coatings on faces of peds; weak fine subangular blocky structure; friable; common yellowish brown (10YR 5/6) 1- or 2-inch lenses of loamy sand; few fine roots; moderately acid; clear wavy boundary.

2C1—26 to 60 inches; yellowish brown (10YR 5/4) coarse sand; single grain; loose; moderately acid; clear wavy boundary.

2C2—60 to 80 inches; yellowish brown (10YR 5/4) gravelly sand; single grain; loose; about 20 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 25 to 45 inches
Content of rock fragments: Ap horizon—0 to 10 percent; Bw horizon—0 to 10 percent; C horizon—0 to 60 percent
Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 to 4

Texture—sandy loam

Bw horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6

Texture—silt loam, fine sandy loam

2C horizon:

Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4

Texture—stratified with dominant textures of sand, loamy sand, or the gravelly or very gravelly analogs of those textures

Watertown Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the subsoil and rapid in the lower part of the subsoil and in the substratum
Parent material: Outwash
Landform: Terraces
Position on the landform: Treads, risers
Slope range: 0 to 70 percent
Commonly adjacent soils: Chili, Wheeling

Taxonomic class: Coarse-loamy, mixed, mesic Ultic Hapludalfs

Typical Pedon

Watertown sandy loam, 0 to 2 percent slopes; about 0.75 mile northwest of Isleta, in Oxford Township; 800 feet north of the intersection of Township Road 255 and County Road 254, along Township Road 255, then 1,200 feet west, T. 5 N., R. 4 W.

Ap—0 to 11 inches; dark yellowish brown (10YR 3/4) sandy loam, yellowish brown (10YR 5/4) dry; weak fine granular structure; friable; few rock fragments; strongly acid; abrupt smooth boundary.

Bt—11 to 21 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/6) clay bridges on sand grains; few fine roots; few rock fragments; strongly acid; clear smooth boundary.

BC—21 to 30 inches; yellowish brown (10YR 5/6) loamy coarse sand; weak coarse subangular blocky structure; very friable; few rock fragments; strongly acid; clear smooth boundary.

C1—30 to 40 inches; yellowish brown (10YR 5/6) sand; single grain; loose; 5 percent rock fragments; strongly acid; gradual wavy boundary.

C2—40 to 80 inches; gray (10YR 5/3) gravelly sand; single grain; loose; 25 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 25 to 48 inches
Content of rock fragments: Ap horizon—0 to 35 percent; Bt and BC horizons—0 to 35 percent; C horizon—0 to 60 percent

Ap horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, chroma of 2 to 4

Texture—sandy loam

Bt and BC horizons:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6

Texture—sandy loam or gravelly sandy loam in the upper part and sandy loam, loamy sand, or the gravelly analogs of those textures in the lower part

C horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6

Texture—the gravelly to extremely gravelly analogs of sand

Wellston Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loess over material weathered from interbedded shale, siltstone, and sandstone
Landform: Hills
Position on the landform: Summits, backslopes
Slope range: 6 to 15 percent
Commonly adjacent soils: Coshocton, Rigley, Westmoreland

Taxonomic class: Fine-silty, mixed, mesic Ultic Hapludalfs

Typical Pedon

Wellston silt loam, 6 to 15 percent slopes; about 3 miles south of Coshocton, in Tuscarawas Township; 1,150 feet south of the intersection of State Route 83 and State Road 16, along State Road 16, then 1,100 feet west, T. 5 N., R. 6 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine roots; slightly acid; abrupt wavy boundary.

Bt1—10 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common distinct brown (10YR 5/3) clay films on vertical faces of peds; few fine roots; strongly acid; clear smooth boundary.

Bt2—20 to 27 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine roots; few dark concretions of iron and manganese oxide; strongly acid; clear wavy boundary.

2Bt3—27 to 34 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; few dark concretions of iron and manganese oxide; 5 percent rock fragments; strongly acid; clear wavy boundary.

2BC—34 to 48 inches; yellowish brown (10YR 5/6) silt loam; few fine prominent (7.5YR 4/6) mottles; weak medium subangular blocky structure; friable; few dark concretions of iron and manganese oxide; 10 percent rock fragments; very strongly acid; clear wavy boundary.

2C—48 to 70 inches; yellowish brown (10YR 5/6) clay loam; common fine prominent grayish brown (10YR 5/2) and few fine prominent strong brown (7.5YR 5/8) mottles; massive; firm; 10 percent rock fragments; very strongly acid; abrupt wavy boundary.

2R—70 to 72 inches: sandstone bedrock

Range in Characteristics

Thickness of the solum: 32 to 55 inches
Depth to bedrock: 40 to 72 inches
Thickness of the loess mantle: 20 to 40 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bt horizon—0 to 5 percent; 2Bt horizon—5 to 40 percent; 2C horizon—0 to 60 percent

Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, silty clay loam

2Bt and 2BC horizons:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, silty clay loam, clay loam, loam, or the channery or very channery analogs of those textures

2C horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; chroma of 3 to 6
Texture—clay loam, loam, or the channery or very channery analogs of those textures

Westmoreland Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Material weathered from interbedded siltstone, sandstone, and shale
Landform: Hills
Position on the landform: Summits, shoulders, backslopes
Slope range: 6 to 35 percent
Commonly adjacent soils: Brownsville, Coshocton, Guernsey, Rigley

Taxonomic class: Fine-loamy, mixed, mesic Ultic Hapludalfs

Typical Pedon

Westmoreland silt loam, 15 to 25 percent slopes; about 4 miles southeast of Coshocton, in Franklin Township; 1,400 feet south of the intersection of County Road 7 and Township Road 146, along County Road 7, then 50 feet west, T. 4 N., R. 6 W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; few coarse fragments; moderately acid; abrupt wavy boundary.

Bt1—7 to 15 inches; strong brown (7.5YR 5/6) silt loam; weak fine subangular blocky structure; friable; few faint yellowish brown (10YR 5/6) clay films on faces of peds; few fine roots; few coarse fragments; moderately acid; clear wavy boundary.

Bt2—15 to 24 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure parting to moderate fine subangular blocky; friable; common faint yellowish brown (10YR 5/6) clay films on faces of peds; few fine roots; 10 percent coarse fragments; moderately acid; clear wavy boundary.

Bt3—24 to 32 inches; yellowish brown (10YR 5/6) channery loam; weak fine subangular blocky structure; friable; few faint yellowish brown (10YR 5/6) clay films on faces of peds; 25 percent coarse fragments; strongly acid; clear wavy boundary.

BC—32 to 38 inches; yellowish brown (10YR 5/4) channery loam; weak medium subangular blocky structure; friable; 25 percent coarse fragments; strongly acid; clear wavy boundary.

C—38 to 55 inches; yellowish brown (10YR 5/4) channery silty clay loam; friable; 25 percent coarse fragments; strongly acid; clear wavy boundary.

Cr—55 to 82 inches; light olive brown (2.5Y 5/4), weathered siltstone.
R—82 to 84 inches; hard siltstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 40 to 72 inches
Content of coarse fragments: Ap horizon—2 to 30 percent; Bt horizon—2 to 30 percent; C horizon—25 to 70 percent
Ap horizon:
Color—hue of 10YR, value of 3 to 5, chroma of 2 or 3
Texture—silt loam
Bt and BC horizons:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam, loam, silty clay loam, or the channery analogs of those textures
C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 to 6
Texture—the channery, very channery, or extremely channery analogs of silty clay loam, loam, or silt loam

Wheeling Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the subsoil and rapid in the substratum
Parent material: Outwash
Landform: Terrace
Position on the landform: Treads
Slope range: 0 to 6 percent
Commonly adjacent soils: Chili, Watertown

Taxonomic class: Fine-loamy, mixed, mesic Ultic Hapludalfs

Typical Pedon

Wheeling silt loam, 0 to 2 percent slopes; about 5.5 miles east of West Lafayette, in Oxford Township; 1,800 feet south of the intersection of County Road 9 and Township Road 258, in Shady Bend, along Township Road 258, then 500 feet east, T. 5 N. R. 4 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure parting to weak fine granular; friable; common fine roots; few pebbles; strongly acid; clear wavy boundary.
Bt1—10 to 21 inches; yellowish brown (10YR 5/6) loam; moderate fine subangular blocky structure; firm; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; few pebbles; strongly acid; clear wavy boundary.
Bt2—21 to 34 inches; yellowish brown (10YR 5/6) loam; moderate fine subangular blocky structure; firm; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine roots; few pebbles; strongly acid; gradual wavy boundary.
BC—34 to 48 inches; yellowish brown (10YR 5/6) sandy loam; few fine distinct strong brown (7.5YR 5/6) and few fine faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; few fine roots; 5 percent gravel; common coarse lenses of fine gravel and fine sandy loam; strongly acid; clear wavy boundary.
2C—48 to 80 inches; strong brown (7.5YR 4/6) very gravelly loamy sand; single grain; loose; 45 percent fine and medium pebbles; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Content of rock fragments: Ap horizon—0 to 10 percent; Bt and BC horizons—0 to 25 percent; C horizon—25 to 65 percent
Ap horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 or 4
Texture—silt loam
Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—loam, silt loam, silty clay loam, or the gravelly analogs of those textures
BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—sandy loam, loam, or the gravelly analogs of those textures
C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—gravelly, very gravelly, or extremely gravelly analogs of loamy sand, sandy loam, or sand

Zipp Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Slow or very slow
Parent material: Lacustrine sediments
Landform: Flood plains
Position on the landform: Steps on flood plains

Slope range: 0 to 2 percent
Commonly adjacent soils: Newark, Orrville

Taxonomic class: Fine, mixed, nonacid, mesic Typic Haplaquepts

Typical Pedon

Zipp silty clay loam, frequently flooded; about 0.25 mile southeast of Layland, in Clark Township; 600 feet north of the intersection of County Road 19 and Township Road 343, along County Road 19, then 200 feet west, T. 7 N., R. 7 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; strong medium angular blocky structure; firm, plastic; few fine roots; slightly acid; abrupt smooth boundary.

Bg1—8 to 19 inches; dark gray (5Y 4/1) silty clay; weak coarse prismatic structure; very firm, plastic; few fine roots; moderately acid; clear wavy boundary.

Bg2—19 to 30 inches; gray (5Y 5/1) silty clay; common fine prominent strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure; very firm, plastic; few fine roots; strongly acid; clear wavy boundary.

Cg1—30 to 60 inches; gray (5Y 5/1) silty clay; many medium prominent yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/6) mottles; massive; very firm, plastic; strongly acid; gradual wavy boundary.

2Cg2—60 to 70 inches; light gray (N 6/0) clay loam; massive; firm; moderately acid; gradual wavy boundary.

2Cg3—70 to 80 inches; light gray (N 6/0) sandy clay loam; massive; firm; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 48 inches

Ap horizon:

Color—hue of 10YR, value of 4, chroma of 1 or 2

Texture—silty clay loam

Bg horizon:

Color—hue of 2.5Y or 5Y or is neutral; value of 4 to 6; chroma of 0 or 1

Texture—silty clay, clay

Cg and 2Cg horizons:

Color—hue of 5Y or is neutral; value of 5 or 6; chroma of 0 or 1

Texture—clay or silty clay in the upper part of the horizons and silty clay loam to sandy loam below a depth of 50 inches

Formation of the Soils

This section describes how the major factors of soil formation have affected the soils in Coshocton County and explains some of the processes in soil formation.

Factors of Soil Formation

Soils form through processes that act on deposited or accumulated geologic material. The major factors in soil formation are parent material, climate, relief, living organisms, and time.

Climate and living organisms, particularly plants, are active forces in soil formation. Their effect on the parent material is modified by relief and by the length of time that the parent material has been acted upon. The relative importance of each factor differs from place to place. In some areas one factor determines most of the soil properties. Generally, however, the interaction of all five factors determines what kind of soil forms in any given place.

Parent Material

Parent material is the raw material that is acted upon by the other soil-forming factors. It largely determines the soil texture, which in turn affects the permeability and available water capacity of the soil. The soils in Coshocton County formed in different kinds of parent material. Many soils formed in material weathered from rock in place. Others formed in material that has collected as a result of geologic erosion. Still other soils formed in material deposited by flowing streams in relatively recent times, in material deposited by glaciers or glacial meltwater, or in material deposited by the wind. Coal mining activities have produced soils formed in spoil material from strip mines.

Bedrock residuum is the most extensive parent material in the county. It is the material weathered from sandstone, siltstone, and shale. Rigley and Hazleton soils formed in residuum derived from coarse grained sandstone bedrock. Brownsville, Gilpin, and Westmoreland soils formed in residuum derived from siltstone and finer grained sandstone. Coshocton and Guernsey soils formed in shale residuum.

Colluvium is the parent material that has collected as a result of geologic erosion. It is at the bottom of many slopes. Clarksburg, Coshocton, and Richland soils formed in colluvium.

Alluvium is the parent material of the soils on flood plains. The alluvial material was deposited by rivers and streams during periods of flooding. It was washed from soils farther upstream in the watershed. Since the frequency and duration of flooding and the speed of the floodwater vary within small areas, alluvial deposits commonly vary in texture within short distances. They are made up of a number of thin layers, each of which was deposited by a different flood. Soils formed in alluvium have weakly developed horizons because the soil-forming process starts over with each new deposition. Melvin, Orrville, and Tioga soils formed in alluvium.

Glacial meltwater deposits are materials laid down by the water from melting glaciers. The speed of the meltwater determines which type of material will be deposited. Fast moving water carries the larger particles known as outwash, while slower moving water carries the smaller particles, or lacustrine deposits.

Outwash deposits are moderately extensive in Coshocton County. These deposits were laid down as glaciers to the north and west of the county melted and water carrying their sediments poured down the valleys. The fast moving water carried away the smaller silt and clay particles, leaving the sand and gravel behind. Chili and Watertown soils formed in glacial outwash.

Lacustrine deposits are also moderately extensive in the county. Slow moving glacial meltwater in valleys that were blocked by glacial ice or by the deposits left behind caused lakes to form. These lacustrine deposits have a high content of silt and a narrow range of particle sizes because of the slow, even deposition of sediments in the relatively still water. Fitchville, Glenford, Mentor, and Sebring soils formed in lacustrine deposits.

Other parent material that was deposited directly by glaciers in the county is called glacial till. A small part of Coshocton County in the western part of New Castle Township has soils that formed in glacial till. The glacial ice contained a variety of soil materials that were left behind when the ice retreated or melted. Glacial till typically contains particles that range in size from fine clay to large stones and boulders. The composition of the till depends on the nature of the area over which the ice passed. Homewood, Loudon, and Titusville soils formed in glacial till.

In some areas of the county, the upper part of the soils formed in loess (Norton 1981). In these areas the loess cap is as much as 48 inches deep over residuum. Keene and Wellston are the principal soils in the county that are partially capped by loess. In some areas the loess mantle is 48 to more than 72 inches thick. Alford soils formed in these thicker deposits of loess.

Because of coal mining activities, soils in large areas of the county formed in mine spoil. The soils in these areas show little, if any, development. Unreclaimed soils differ from reclaimed soils. The texture of their surface layer varies, and there are major differences in topography. If plants are to be established, large additions of lime are needed to overcome the acid conditions in many areas of these soils. Bethesda, Fairpoint, and Farmerstown soils formed in surface mine spoil.

Climate

Climate influences the formation of soils in many ways. Rainfall is the most important climatic element in the formation of soils. Water dissolves soluble materials and is responsible for the leaching process. It is necessary for the growth and development of plants, which contribute organic matter to the soil. Water also physically ruptures the soil when it freezes.

Temperature is also a climatic factor that has a great influence on the formation of soils. It exerts a major influence on the type and quality of vegetation that the soil can support. Chemical reactions within the soil increase as the temperature increases.

The climate in an area the size of Coshocton County is almost a constant factor of soil formation, but it may be modified in and around certain soils or because of topographic differences. For example, the lower lying alluvial and lacustrine soils are wetter and cooler than the soils in areas around them. South- and west-facing slopes are generally warmer and receive more sunlight than the soils in nearly level areas. These contrasts account for some of the differences in microclimates within the same general climatic region. These differences can affect the amount of available moisture and the quantity and quality of vegetation. More information about the climate in Coshocton County is available under the heading “General Nature of the County.”

Relief

The topography of Coshocton County has a great influence on the formation of soils. It influences soil formation through its effect on drainage, runoff, and erosion. If a slope is steep, more water runs off the surface and less soaks into the soil. This results in less downward movement of water through the soil layers, thereby decreasing the amount of clays that are translocated within the soil profile, which is a major factor in soil development. Also, geologic erosion is a constant factor on the steeper slopes as material is being continually removed, exposing the underlying, unweathered material. Brownsville and Hazleton soils, which are on steep slopes, show little internal soil development.

Soils on the gentler slopes, where water has more of a chance to infiltrate through the soil, show a greater degree of soil development. Glenford and Watertown soils, which are on lacustrine and outwash terraces, are examples of these soils.

Even though soils may have formed in the same kind of parent material, topography influences the internal drainage. Mentor and Fitchville soils both formed in silty lacustrine deposits, and Homewood and Titusville soils both formed in the same kind of glacial till. Mentor soils are well drained and have a seasonal high water table that generally is at a depth of more than 48 inches. Water passes through Mentor soils readily. Fitchville soils, which are in the lower landscape positions, are somewhat poorly drained and have a seasonal high water table within a depth of 12 inches. Homewood soils, which are in the more convex landscape positions, have a seasonal high water table at a depth of more than 30 inches, whereas Titusville soils, which are in the lower, more concave areas, have a seasonal high water table between depths of 18 and 30 inches.

Topography also has a great effect on the formation of soils because many areas receive soil material, or colluvium, from the steeper slopes above. Many of the soils in the county formed in colluvium. They are the Clarksburg, Coshocton, Guernsey, and Richland soils. Soils that have a bouldery or stony surface phase also formed partially in colluvial material.

Living Organisms

Plant and animal life are important factors in the formation of soils. The vegetation under which a soil forms influences the color, structure, and content of organic matter. Soils formed under forest vegetation generally have a lower content of organic matter and are lighter in color than the soils formed under grass.

Most of the soils in the county formed under hardwood forest vegetation. Brownsville, Coshocton, Hazleton, and Westmoreland soils formed under a hardwood forest consisting mainly of oaks, maples, beech, and hickory. Trees that are tolerant of wetness dominate most of the somewhat poorly drained and poorly drained soils, such as the Fitchville, Melvin, Orrville, and Sebring soils.

Scattered areas of soils formed under grass vegetation. The surface layer of these soils is much deeper and darker than that of soils not formed under grass. Landes and Huntington are examples of soils formed under grass vegetation.

As plants grow and die, their remains are added to the soil. Burrowing animals, earthworms, bacteria, and fungi help to convert those raw plant remains into organic matter. Microorganisms transform organic matter into humus from which plants can obtain nutrients. Burrowing animals and earthworms help to make the soil more porous. As a result, water moves through the soil more rapidly. The burrowing of animals also constantly mixes the soil.

Human activities affect soil formation. Cultivation, surface mining, and land clearing accelerate erosion and change soil development. Many areas of wetter soils, such as the Fitchville, Newark, and Sebring soils, have been drained, ensuring that their future formation will take place under drier conditions. Applications of lime, fertilizer, or other chemicals affect the chemistry of the soils.

Time

The length of time the parent material has been exposed to the other soil-forming factors plays a great role in the overall development of a soil. In Coshocton County, parent material has been exposed for various lengths of time. For example, surface mine spoil, such as that of the Bethesda soils, is so recently exposed that little soil development has taken place, whereas soils that developed in residuum, such as Westmoreland soils, have strongly expressed horizonation because they have been exposed to the soil-forming factors for a long period of time. Other young soils throughout the county are those that formed in recent alluvium, such as Orrville and Melvin soils. These soils show minimal development because sediment continues to be deposited on them during periods of flooding.

Older soils will also show chemical differences internally. Some of the oldest soils in the county have the lowest base saturation. Rigley and Gilpin soils fall into this category.

Soils formed in glacial till or lacustrine sediments, such as the Homewood and Glenford soils, also show a high degree of soil development. The age of these soils falls between those of soils formed in residuum and those formed in alluvium.

Processes of Soil Formation

The process of soil formation is a complex sequence of events. It includes additions of organic and mineral materials to the soil as solids, liquids, and gases; losses of these materials from the soil; transformations of mineral and organic substances within the soil; and translocations of materials from one point to another within the soil (Simonson 1959). Plants, animals, and mineral constituents are all part of a dynamic system that helps to play a role in the processes of soil formation.

There are several types of additions of organic and mineral materials that affect soil formation in Coshocton County. One of the most important is the addition of organic matter that has been decomposed from plant material by biologic activity. Organic matter is responsible for the darkened color of the surface layer as compared to that of the subsoil. Additions can also come in the form of sediments being deposited during floods or by materials eroding at one spot and being deposited at another.

Losses or removals from the soil occur mainly as a result of chemical changes within the soil or as a loss of water from evapotranspiration. Nitrogen transferred from the organic to inorganic form and the loss of carbon as a result of the oxidation of organic matter are chemical reactions that account for losses within the soil.

Transformations within the soil are largely mineral transformations and the reduction of particle size by weathering. Structure and the formation of concretions are transformations that are tied to chemical reactions. In wetter soils, iron is reduced thus forming reddish brown concretions of varying sizes within the soil profile. The structure of different soils is expressed in varying degrees depending on the parent material. Older soils on more stable landscapes generally have stronger expressed horizonation than that of soils on flood plains or on less stable landscapes.

Translocation of materials generally occurs as a result of downward movement of water carrying suspended compounds and soil particles. Leaching of calcium carbonate has occurred in many soils in the county. Chili, Coshocton, Gilpin, Homewood, Orrville, Tioga, and Westmoreland are all soils that have been leached free of calcium carbonate. The translocation of silicate clays is a major morphological feature in many of the soils in the county. Many soils have a zone of eluviation, known as an E horizon. The E horizon has platy structure and is lighter in color than the B horizon, which lies directly below. The B horizon is a zone of illuviation or clay enrichment from the zone above. Chili, Clarksburg, Coshocton, Fitchville, Glenford, Guernsey, Homewood, Rigley, Titusville, and many other soils in the county have this very definitive morphological feature within their horizonation.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively* *drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic).—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head out. To form a flower head.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permafrost. Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Nearly level and gently sloping	0 to 8 percent
Gently sloping	2 to 6 percent
Sloping	6 to 15 percent
Sloping and moderately steep	8 to 20 percent
Sloping and moderately steep	8 to 25 percent
Moderately steep	12 to 25 percent
Moderately steep	15 to 20 percent
Moderately steep	15 to 25 percent
Moderately steep and steep	15 to 35 percent
Steep	25 to 35 percent
Steep	25 to 40 percent
Steep and very steep	25 to 70 percent
Very steep	35 to 70 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1951-88 at the North Appalachian Experimental Research Station in Ohio.)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	31.5	15.5	23.5	62	-13	0	2.25	1.11	3.23	6	8.4
February-	34.8	18.3	26.6	64	- 8	0	2.00	.97	2.89	5	9.9
March----	45.9	27.8	36.9	78	5	25	3.05	1.74	4.20	7	4.5
April----	58.8	39.4	49.1	82	20	74	3.43	1.84	4.82	7	.2
May------	69.1	49.7	59.4	87	30	314	3.66	2.36	4.82	8	.0
June-----	77.3	58.0	67.7	90	42	531	4.00	1.91	5.79	7	.0
July-----	81.1	62.2	71.7	91	49	673	4.37	2.62	5.92	7	.0
August---	79.9	61.1	70.5	91	47	636	3.35	1.60	4.85	6	.0
September	73.8	54.7	64.3	90	36	429	2.92	1.20	4.36	5	.0
October--	62.7	43.3	53.0	81	25	166	2.30	1.01	3.39	5	.0
November-	49.4	33.1	41.3	75	12	13	2.94	1.54	4.15	7	1.1
December-	36.9	22.5	29.7	66	- 3	12	2.49	1.53	3.34	7	5.9
Yearly:											
Average	58.4	40.5	49.5	---	---	---	---	---	---	---	---
Extreme	---	---	---	93	-15	---	---	---	---	---	---
Total--	---	---	---	---	---	2,873	36.76	32.04	40.94	77	30.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1951-88 at the North Appalachian Experimental Research Station in Ohio.)

Probability	Temperature		
	24^{o} F or lower	28^{o} F or lower	32^{o} F or lower
Last freezing temperature in spring:			
1 year in 10 later than	Apr. 17	Apr. 26	May 13
2 years in 10 later than	Apr. 12	Apr. 21	May 7
5 years in 10 later than	Apr. 2	Apr. 13	Apr. 26
First freezing temperature in fall:			
1 year in 10 earlier than	Oct. 22	Oct. 11	Sep. 30
2 years in 10 earlier than	Oct. 29	Oct. 17	Oct. 5
5 years in 10 earlier than	Nov. 11	Oct. 28	Oct. 16

Table 3.--Growing Season

(Recorded in the period 1951-88 at the North Appalachian Experimental Research Station in Ohio.)

Probability	Daily minimum temperature during growing season		
	Higher than 24^{o} F	Higher than 28^{o} F	Higher than 32^{o} F
	Days	Days	Days
9 years in 10	195	176	147
8 years in 10	205	183	156
5 years in 10	222	197	172
2 years in 10	240	211	188
1 year in 10	249	219	197

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaB	Aaron silt loam, 2 to 6 percent slopes	1,419	0.4
AaC2	Aaron silt loam, 6 to 15 percent slopes, eroded	8,519	2.3
AfB	Alford silt loam, 2 to 6 percent slopes	198	*
AfC2	Alford silt loam, 6 to 15 percent slopes, eroded	616	0.2
BgB	Bethesda loam, 0 to 8 percent slopes	2,834	0.8
BgD	Bethesda loam, 8 to 25 percent slopes	5,270	1.5
BgE	Bethesda loam, 25 to 40 percent slopes	2,056	0.6
BhB	Bethesda channery loam, 0 to 8 percent slopes	931	0.3
BhD	Bethesda channery loam, 8 to 25 percent slopes	3,333	0.9
BhF	Bethesda channery loam, 25 to 70 percent slopes	17,948	4.9
BrD	Brownsville channery silt loam, 15 to 25 percent slopes	518	0.1
BrE	Brownsville channery silt loam, 25 to 35 percent slopes	9,969	2.7
BrF	Brownsville channery silt loam, 35 to 70 percent slopes	6,705	1.8
BtF	Brownsville-Rock outcrop complex, 35 to 70 percent slopes	345	*
CdA	Caneadea silt loam, 0 to 2 percent slopes	199	*
CfA	Chili loam, 0 to 2 percent slopes	1,259	0.3
CfB	Chili loam, 2 to 6 percent slopes	1,156	0.3
CfC	Chili loam, 6 to 15 percent slopes	524	0.1
CfD	Chili loam, 15 to 25 percent slopes	64	*
CfE	Chili loam, 25 to 35 percent slopes	49	*
CgA	Chili-Urban land complex, 0 to 2 percent slopes	597	0.2
CgB	Chili-Urban land complex, 2 to 6 percent slopes	958	0.3
ChA	Cidermill silt loam, 0 to 2 percent slopes	544	0.1
ChB	Cidermill silt loam, 2 to 6 percent slopes	624	0.2
CkC	Clarksburg silt loam, 6 to 15 percent slopes	663	0.2
CkD	Clarksburg silt loam, 15 to 25 percent slopes	1,442	0.4
CoB	Coshocton silt loam, 2 to 6 percent slopes	2,626	0.7
CoC2	Coshocton silt loam, 6 to 15 percent slopes, eroded	26,656	7.3
CoD	Coshocton silt loam, 15 to 25 percent slopes	56,029	15.4
CoE	Coshocton silt loam, 25 to 35 percent slopes	4,951	1.4
CpC	Coshocton silt loam, 6 to 15 percent slopes, very stony	894	0.2
CpD	Coshocton silt loam, 15 to 25 percent slopes, very stony	5,981	1.6
CrD	Coshocton-Rigley complex, 15 to 25 percent slopes	158	*
CrE	Coshocton-Rigley complex, 25 to 35 percent slopes	1,510	0.4
CsD	Coshocton-Westmoreland complex, 15 to 25 percent slopes	6,547	1.8
CsE	Coshocton-Westmoreland complex, 25 to 35 percent slopes	14,246	3.9
DeC	Dekalb channery sandy loam, 6 to 15 percent slopes, stony	882	0.2
Ds	Dumps, mine	129	*
EuA	Euclid silt loam, occasionally flooded	387	0.1
FaB	Fairpoint loam, 0 to 8 percent slopes	407	0.1
FaD	Fairpoint loam, 8 to 25 percent slopes	736	0.2
FaE	Fairpoint loam, 25 to 35 percent slopes	510	0.1
FeB	Farmerstown loam, 0 to 8 percent slopes	162	*
FeC	Farmerstown loam, 8 to 20 percent slopes	447	0.1
FhA	Fitchville silt loam, 0 to 2 percent slopes	2,661	0.7
FhB	Fitchville silt loam, 2 to 6 percent slopes	1,626	0.4
GdB	Germano sandy loam, 2 to 6 percent slopes	522	0.1
GdC2	Germano sandy loam, 6 to 15 percent slopes, eroded	1,426	0.4
GhB	Gilpin silt loam, 2 to 6 percent slopes	645	0.2
GhC	Gilpin silt loam, 6 to 15 percent slopes	5,954	1.6
GhD	Gilpin silt loam, 15 to 25 percent slopes	471	0.1
GnA	Glenford silt loam, 0 to 2 percent slopes	1,508	0.4
GnB	Glenford silt loam, 2 to 6 percent slopes	4,438	1.2
GnC	Glenford silt loam, 6 to 15 percent slopes	4,374	1.2
GpA	Glenford silt loam, occasionally flooded	248	*
GuC	Guernsey silt loam, 6 to 15 percent slopes	1,657	0.5
GuD	Guernsey silt loam, 15 to 25 percent slopes	9,244	2.5
HaD	Hazleton channnery sandy loam, 15 to 25 percent slopes	1,050	0.3
HaE	Hazleton channery sandy loam, 25 to 35 percent slopes	4,133	1.1
HaF	Hazleton channery sandy loam, 35 to 70 percent slopes	3,910	1.1
HeF	Hazleton channery sandy loam, 25 to 70 percent slopes, very bouldery	6,695	1.8
HoB	Homewood silt loam, 2 to 6 percent slopes	550	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
HoC	Homewood silt loam, 6 to 15 percent slopes	574	0.2
Ht	Huntington silt loam, rarely flooded	344	*
JmA	Jimtown loam, 0 to 2 percent slopes	385	0.1
KeB	Keene silt loam, 2 to 6 percent slopes	1,818	0.5
KeC	Keene silt loam, 6 to 15 percent slopes	3,264	0.9
La	Landes sandy loam, rarely flooded	548	0.2
Lb	Landes loam, occasionally flooded	425	0.1
Lo	Lobdell silt loam, occasionally flooded	4,107	1.1
LrB	Loudon silt loam, 2 to 6 percent slopes	372	0.1
LrC	Loudon silt loam, 6 to 15 percent slopes	860	0.2
LvC	Loudonville silt loam, 6 to 15 percent slopes	16	*
LvD	Loudonville silt loam, 15 to 20 percent slopes	53	*
MaB	Markland silt loam, 2 to 6 percent slopes	55	*
MaC	Markland silt loam, 6 to 15 percent slopes	104	*
MaD2	Markland silt loam, 15 to 35 percent slopes, eroded	599	0.2
Mg	Melvin silt loam, frequently flooded	3,870	1.1
Mh	Melvin silt loam, ponded	159	*
MnA	Mentor silt loam, 0 to 2 percent slopes	787	0.2
MnB	Mentor silt loam, 2 to 6 percent slopes	829	0.2
MnC	Mentor silt loam, 6 to 15 percent slopes	1,675	0.5
MnD	Mentor silt loam, 15 to 25 percent slopes	783	0.2
Ne	Newark silt loam, occasionally flooded	3,279	0.9
Nf	Newark silt loam, frequently flooded	867	0.2
Nn	Nolin silt loam, rarely flooded	765	0.2
No	Nolin silt loam, occasionally flooded	2,332	0.6
Or	Orrville silt loam, occasionally flooded	11,078	3.1
Pg	Pits, gravel	306	*
Ph	Pits, quarry	198	*
RcC	Richland silt loam, 6 to 15 percent slopes	229	*
RcD	Richland silt loam, 15 to 25 percent slopes	947	0.3
RgC	Rigley sandy loam, 6 to 15 percent slopes	3,975	1.1
RgD	Rigley sandy loam, 15 to 25 percent slopes	8,513	2.3
RgE	Rigley sandy loam, 25 to 35 percent slopes	4,094	1.1
RhD	Rigley sandy loam, 12 to 25 percent slopes, very stony	491	0.1
Se	Sebring silt loam	1,060	0.3
Th	Tioga fine sandy loam, rarely flooded	5,317	1.5
Tk	Tioga fine sandy loam, occasionally flooded	3,322	0.9
Tm	Tioga fine sandy loam, frequently flooded	792	0.2
To	Tioga-Urban land complex, rarely flooded	712	0.2
TsB	Titusville silt loam, 2 to 6 percent slopes	731	0.2
TsC	Titusville silt loam, 6 to 15 percent slopes	541	0.1
Ug	Udorthents, loamy	2,300	0.6
Uh	Udorthents, loamy-skeletal	122	*
Up	Udorthents-Pits complex	415	0.1
W	Water	3,257	0.9
WaA	Watertown sandy loam, 0 to 2 percent slopes	3,731	1.0
WaB	Watertown sandy loam, 2 to 6 percent slopes	2,594	0.7
WaC	Watertown sandy loam, 6 to 15 percent slopes	1,306	0.4
WaD	Watertown sandy loam, 15 to 25 percent slopes	480	0.1
WaF	Watertown sandy loam, 25 to 70 percent slopes	730	0.2
Wb	Wappinger sandy loam, rarely flooded	499	0.1
WeC	Wellston silt loam, 6 to 15 percent slopes	557	0.2
WhC	Westmoreland silt loam, 6 to 15 percent slopes	3,142	0.9
WhD	Westmoreland silt loam, 15 to 25 percent slopes	13,234	3.6
WhE	Westmoreland silt loam, 25 to 35 percent slopes	13,957	3.8
WnA	Wheeling silt loam, 0 to 2 percent slopes	1,485	0.4
WnB	Wheeling silt loam, 2 to 6 percent slopes	253	*
Zp	Zipp silty clay loam, frequently flooded	327	*
	Total	362,675	100.0

* Less than 0.05 percent. The combined extent of the soils assigned an asterisk in the "Percent" column is about 2 percent of the survey area.

Table 5.--Main Cropland Limitations and Hazards

(Absence of an entry indicates that the soil is not suited to cropland or crops generally are not grown on the soil.)

Map symbol and soil name	Cropland limitations and hazards
AaB:	
Aaron	Surface compaction Easily eroded Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
AaC2:	
Aaron	Frost heave Surface compaction Part of original surface layer removed by erosion Fair tilth Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Poor tilth
AfB:	
Alford	Surface compaction Easily eroded Surface crusting Limited organic matter content Frost heave
AfC2:	
Alford	Surface compaction Part of original surface layer removed by erosion Fair tilth Easily eroded Slope Surface crusting Limited organic matter content Frost heave
BgB:	
Bethesda	Limited available water capacity Limited rooting depth Easily eroded Limited organic matter content Slope
BgD:	
Bethesda	Easily eroded Limited organic matter content Limited available water capacity Limited rooting depth Slope
BgE, BhB, BhD, BhF:	
Bethesda.	

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
BrD:	
Brownsville	High potential for ground-water pollution Limited available water capacity Easily eroded Slope Limited organic matter content Poor tilth
BrE, BrF:	
Brownsville.	
BtF:	
Brownsville.	
Rock outcrop.	
CdA:	
Caneadea	Surface compaction Restricted permeability Seasonal high water table Frost heave Poor tilth
CfA:	
Chili	High potential for ground-water pollution Limited available water capacity Excessive permeability Limited organic matter content
CfB:	
Chili	High potential for ground-water pollution Limited available water capacity Excessive permeability Limited organic matter content
CfC:	
Chili	High potential for ground-water pollution Easily eroded Slope Excessive permeability Limited organic matter content Limited available water capacity
CfD, CfE:	
Chili.	
CgA, CgB:	
Chili.	
Urban land.	
ChA:	
Cidermill	High potential for ground-water pollution Surface compaction Excessive permeability Surface crusting Limited organic matter content

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
ChB:	
Cidermill	High potential for ground-water pollution Surface compaction Easily eroded Excessive permeability Surface crusting Limited organic matter content
CkC:	
Clarksburg	Surface compaction Easily eroded Slope Limited rooting depth Surface crusting Seasonal high water table Limited organic matter content
CkD:	
Clarksburg	Surface compaction Easily eroded Slope Limited rooting depth Surface crusting Seasonal high water table Limited organic matter content
CoB:	
Coshocton	Surface compaction Easily eroded Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
CoC2:	
Coshocton	Surface compaction Part of original surface layer removed by erosion Fair tilth Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
CoD:	
Coshocton	Surface compaction Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
CoE, CpC, CpD:	
Coshocton.	

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
CrD:	
Coshocton	Surface compaction Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
Rigley	Moderate potential for ground-water pollution Wind erosion Easily eroded Slope Limited organic matter content Limited available water capacity
CrE:	
Coshocton.	
Rigley.	
CsD:	
Coshocton	Surface compaction Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
Westmoreland	Surface compaction Easily eroded Slope Limited organic matter content
CsE:	
Coshocton.	
Westmoreland.	
DeC:	
Dekalb	Surface stones High potential for ground-water pollution Limited available water capacity Easily eroded Slope Depth to rock Excessive permeability
Ds:	
Dumps.	
EuA:	
Euclid	Occasional flooding High potential for ground-water pollution Surface compaction Surface crusting Seasonal high water table Limited organic matter content Frost heave

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
FaB:	
Fairpoint	Limited available water capacity Easily eroded Limited organic matter content Limited rooting depth
FaD:	
Fairpoint	Limited available water capacity Easily eroded Slope Limited organic matter content Limited rooting depth
FaE:	
Fairpoint.	
FeB:	
Farmerstown	Limited rooting depth Limited available water capacity Wind erosion Easily eroded Limited organic matter content
FeC:	
Farmerstown	Limited rooting depth Limited available water capacity Wind erosion Easily eroded Slope Limited organic matter content
FhA:	
Fitchville	Surface compaction Surface crusting Seasonal high water table Limited organic matter content Frost heave
FhB:	
Fitchville	Surface compaction Easily eroded Surface crusting Seasonal high water table Limited organic matter content Frost heave
GdB:	
Germano	High potential for ground-water pollution Limited available water capacity Depth to rock Limited organic matter content
GdC2:	
Germano	High potential for ground-water pollution Limited available water capacity Part of original surface layer removed by erosion Fair tilth Easily eroded Slope Depth to rock Limited organic matter content

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
GhB:	
Gilpin	High potential for ground-water pollution Surface compaction Limited available water capacity Depth to rock
GhC:	
Gilpin	High potential for ground-water pollution Surface compaction Limited available water capacity Easily eroded Slope Depth to rock
GhD:	
Gilpin	High potential for ground-water pollution Surface compaction Limited available water capacity Easily eroded Slope Depth to rock
GnA:	
Glenford	Surface compaction Surface crusting Limited organic matter content Frost heave
GnB:	
Glenford	Surface compaction Easily eroded Surface crusting Limited organic matter content Frost heave
GnC:	
Glenford	Surface compaction Easily eroded Slope Surface crusting Limited organic matter content Frost heave
GpA:	
Glenford	Surface compaction Surface crusting Limited organic matter content Frost heave Rare flooding
GuC:	
Guernsey	Surface compaction Restricted permeability Easily eroded Slope Surface crusting Seasonal high water table Limited organic matter content Frost heave

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
GuD:	
Guernsey	Restricted permeability Surface compaction Easily eroded Slope Surface crusting Seasonal high water table Limited organic matter content Frost heave
HaD:	
Hazleton	High potential for ground-water pollution Limited available water capacity Easily eroded Slope
HaE, HaF, HeF:	
Hazleton.	
HoB:	
Homewood	Surface compaction Limited rooting depth Easily eroded Surface crusting Limited organic matter content Restricted permeability
HoC:	
Homewood	Surface compaction Easily eroded Slope Limited rooting depth Surface crusting Limited organic matter content Restricted permeability
Ht:	
Huntington	Rare flooding Surface compaction Frost heave
JmA:	
Jimtown	High potential for ground-water pollution Seasonal high water table Limited organic matter content Frost heave
KeB:	
Keene	Surface compaction Easily eroded Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
KeC:	
Keene	Surface compaction Easily eroded Slope Restricted permeability Surface crusting Seasonal high water table Limited organic matter content Frost heave
La:	
Landes	Rare flooding High potential for ground-water pollution Wind erosion Excessive permeability Limited organic matter content
Lb:	
Landes	Occasional flooding High potential for ground-water pollution Wind erosion Excessive permeability Limited organic matter content
Lo:	
Lobdell	Occasional flooding High potential for ground-water pollution Surface compaction Surface crusting Limited organic matter content Frost heave
LrB:	
Loudon	Surface compaction Easily eroded Surface crusting Limited organic matter content Frost heave Restricted permeability
LrC:	
Loudon	Surface compaction Easily eroded Slope Surface crusting Limited organic matter content Frost heave Restricted permeability
LvC:	
Loudonville	High potential for ground-water pollution Surface compaction Limited available water capacity Easily eroded Slope Depth to rock Surface crusting Limited organic matter content

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
LvD:	
Loudonville	High potential for ground-water pollution Surface compaction Limited available water capacity Easily eroded Slope Depth to rock Surface crusting Limited organic matter content
MaB:	
Markland	Surface compaction Easily eroded Poor tilth Restricted permeability
MaC:	
Markland	Surface compaction Easily eroded Slope Poor tilth Restricted permeability
MaD2:	
Markland.	
Mg:	
Melvin	Frequent flooding High potential for ground-water pollution Surface compaction Surface crusting Seasonal high water table Limited organic matter content Frost heave
Mh:	
Melvin.	
MnA:	
Mentor	Surface compaction Surface crusting Limited organic matter content Frost heave
MnB:	
Mentor	Surface compaction Easily eroded Surface crusting Limited organic matter content Frost heave
MnC:	
Mentor	Surface compaction Easily eroded Slope Surface crusting Limited organic matter content Frost heave
MnD:	
Mentor.	

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
Ne:	
Newark	Occasional flooding High potential for ground-water pollution Surface compaction Seasonal high water table Frost heave
Nf:	
Newark	Frequent flooding High potential for ground-water pollution Surface compaction Seasonal high water table Frost heave
Nn:	
Nolin	Rare flooding Surface compaction
No:	
Nolin	Occasional flooding Surface compaction
Or:	
Orrville	Occasional flooding High potential for ground-water pollution Surface compaction Seasonal high water table Frost heave
Pg:	
Pits, gravel.	
Ph:	
Pits, quarry.	
RcC:	
Richland	Surface compaction Easily eroded Slope Surface crusting Limited organic matter content
RcD:	
Richland	Surface compaction Easily eroded Slope Surface crusting Limited organic matter content
RgC:	
Rigley	Moderate potential for ground-water pollution Wind erosion Slope Limited organic matter content
RgD:	
Rigley	Moderate potential for ground-water pollution Wind erosion Slope Limited organic matter content
RgE, RhD:	
Rigley.	

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
Se:	
Sebring	Ponding High potential for ground-water pollution Surface compaction Surface crusting Frost heave
Th:	
Tioga	Rare flooding High potential for ground-water pollution Wind erosion
Tk:	
Tioga	Occasional flooding High potential for ground-water pollution Wind erosion
Tm:	
Tioga	Frequent flooding High potential for ground-water pollution Wind erosion
To:	
Tioga.	
Urban land.	
TsB:	
Titusville	Surface compaction Limited rooting depth Easily eroded Surface crusting Seasonal high water table Limited organic matter content Frost heave
TsC:	
Titusville	Surface compaction Limited rooting depth Easily eroded Slope Surface crusting Seasonal high water table Limited organic matter content Frost heave
Ug:	
Udorthents, loamy.	
Uh:	
Udorthents, loamy-skeletal.	
Up:	
Udorthents.	
Pits.	

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
WaA:	
Watertown	High potential for ground-water pollution Limited available water capacity Wind erosion Excessive permeability Limited organic matter content
WaB:	
Watertown	High potential for ground-water pollution Limited available water capacity Wind erosion Excessive permeability Limited organic matter content
WaC:	
Watertown	High potential for ground-water pollution Limited available water capacity Wind erosion Easily eroded Slope Excessive permeability Limited organic matter content
WaD, WaF:	
Watertown.	
Wb:	
Wappinger	Rare flooding High potential for ground-water pollution Limited available water capacity Wind erosion
WeC:	
Wellston	High potential for ground-water pollution Surface compaction Easily eroded Slope Surface crusting Limited organic matter content Frost heave
WhC:	
Westmoreland	Surface compaction Easily eroded Slope
WhD:	
Westmoreland	Surface compaction Easily eroded Slope
WhE:	
Westmoreland.	
WnA:	
Wheeling	High potential for ground-water pollution Surface compaction Excessive permeability Surface crusting Limited organic matter content

Table 5.--Main Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
WnB:	
Wheeling	High potential for ground-water pollution Surface compaction Easily eroded Excessive permeability Surface crusting Limited organic matter content
Zp:	
Zipp	Ponding Frequent flooding Surface compaction Fair tilth Restricted permeability Surface crusting Limited organic matter content

Table 6.--Land Capability and Yields per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
AaB:						
Aaron	IIe	110	35	43	---	21
AaC2:						
Aaron	IIIe	95	25	33	---	17
AfB:						
Alford	IIe	130	40	48	---	26
AfC2:						
Alford	IIIe	115	35	42	---	20
BgB:						
Bethesda	IIIs	---	---	---	---	---
BgD:						
Bethesda	IVs	---	---	---	---	---
BgE:						
Bethesda	VIe	---	---	---	---	---
BhB:						
Bethesda	VIs	---	---	---	---	---
BhD:						
Bethesda	VIs	---	---	---	---	---
BhF:						
Bethesda	VIIe	---	---	---	---	---
BrD:						
Brownsville	IVe	---	---	25	55	---
BrE:						
Brownsville	VIe	---	---	---	---	---
BrF:						
Brownsville	VIIe	---	---	---	---	---
BtF:						
Brownsville	VIIe	---	---	---	---	---
Rock outcrop.						
CdA:						
Caneadea	IIIw	90	25	36	65	17
CfA:						
Chili	IIs	110	35	45	75	21
CfB:						
Chili	IIe	95	33	35	73	20
CfC:						
Chili	IIIe	80	---	33	65	15
CfD:						
Chili	VIe	---	---	---	---	---

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
CfE:						
Chili-----------	VIIe	---	---	---	---	---
CgA:						
Chili-----------	IIs	---	---	---	---	---
Urban land.						
CgB:						
Chili-----------	IIe	---	---	---	---	---
Urban land.						
ChA:						
Cidermill-------	I	130	40	50	80	26
ChB:						
Cidermill-------	IIe	125	38	45	75	24
CkC:						
Clarksburg------	IIIe	90	---	---	65	18
CkD:						
Clarksburg------	IVe	80	---	---	60	16
CoB:						
Coshocton-------	IIe	110	35	42	62	22
CoC2:						
Coshocton-------	IIIe	90	25	30	55	17
CoD:						
Coshocton-------	IVe	75	---	25	50	15
CoE:						
Coshocton-------	VIe	---	---	---	---	---
CpC:						
Coshocton-------	VIs	---	---	---	---	---
CpD:						
Coshocton-------	VIs	---	---	---	---	---
CrD--------------		75	---	20	35	---
Coshocton-------	IVe					
Rigley----------	VIe					
CrE--------------		---	---	---	---	---
Coshocton-------	VIe					
Rigley----------	VIIe					
CsD--------------		78	---	25	40	15
Coshocton-------	IVe					
Westmoreland----	IVe					
CsE--------------		---	---	---	---	---
Coshocton-------	VIe					
Westmoreland----	VIe					

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
DeC:						
Dekalb----------	IIIe	---	---	---	---	---
Ds:						
Dumps.						
EuA:						
Euclid----------	IIw	115	35	45	70	23
FaB:						
Fairpoint-------	IIIs	---	---	---	---	---
FaD:						
Fairpoint-------	IVs	---	---	---	---	---
FaE:						
Fairpoint-------	VIe	---	---	---	---	---
FeB:						
Farmerstown-----	IIIe	80	---	25	50	---
FeC:						
Farmerstown-----	IVe	60	---	20	45	---
FhA:						
Fitchville------	IIw	120	35	40	72	24
FhB:						
Fitchville------	IIe	115	33	40	68	22
GdB:						
Germano---------	IIe	80	---	33	55	16
GdC2:						
Germano---------	IIIe	75	---	30	45	14
GhB:						
Gilpin----------	IIe	90	25	35	60	18
GhC:						
Gilpin----------	IIIe	85	20	33	50	16
GhD:						
Gilpin----------	IVe	75	---	---	---	14
GnA:						
Glenford--------	I	120	40	45	80	25
GnB:						
Glenford--------	IIe	110	35	40	77	24
GnC:						
Glenford--------	IIIe	95	30	40	70	---
GpA:						
Glenford--------	I	110	38	50	75	25
GuC:						
Guernsey--------	IIIe	85	---	35	60	17
GuD:						
Guernsey--------	IVe	75	---	30	55	15

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
HaD:						
Hazleton--------	IVe	---	---	---	---	---
HaE:						
Hazleton--------	VIe	---	---	---	---	---
HaF:						
Hazleton--------	VIIe	---	---	---	---	---
HeF:						
Hazleton--------	VIIs	---	---	---	---	---
HoB:						
Homewood--------	IIe	120	35	50	80	24
HoC:						
Homewood--------	IIIe	105	30	45	75	21
Ht:						
Huntington------	I	145	45	52	80	28
JmA:						
Jimtown---------	IIw	110	25	42	70	21
KeB:						
Keene-----------	IIe	115	30	38	65	22
KeC:						
Keene-----------	IIIe	100	28	35	60	20
La:						
Landes----------	IIs	110	34	45	62	21
Lb:						
Landes----------	IIw	80	26	34	47	16
Lo:						
Lobdell---------	IIw	110	35	40	70	21
LrB:						
Loudon----------	IIe	95	38	48	---	19
LrC:						
Loudon----------	IIIe	80	30	45	---	16
LvC:						
Loudonville-----	IIIe	85	25	35	65	16
LvD:						
Loudonville-----	IVe	75	---	30	55	15
MaB:						
Markland--------	IIIe	105	28	36	---	18
MaC:						
Markland--------	IVe	95	24	32	---	16
MaD2:						
Markland--------	VIIe	---	---	---	---	---
Mg:						
Melvin----------	IIIw	80	30	---	---	15

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
Mh: Melvin	Vw	---	---	---	---	---
MnA: Mentor	I	130	40	50	85	26
MnB: Mentor	IIe	125	35	50	80	25
MnC: Mentor	IIIe	110	30	43	70	20
MnD: Mentor	VIe	---	---	---	---	---
Ne: Newark	IIw	110	35	---	---	21
Nf: Newark	IIIw	---	---	---	---	---
Nn: Nolin	I	140	40	45	80	27
No: Nolin	IIw	115	35	41	70	23
Or: Orrville	IIw	105	35	40	75	21
Pg: Pits, gravel.						
Ph: Pits, quarry.						
RcC: Richland	IIIe	100	---	43	70	17
RcD: Richland	IVe	80	---	---	---	16
RgC: Rigley	IIIe	85	30	30	65	17
RgD: Rigley	IVe	75	24	25	55	15
RgE: Rigley	VIe	---	---	---	---	---
RhD: Rigley	VIs	---	---	---	---	---
Se: Sebring	IIIw	90	30	30	60	18
Th: Tioga	I	135	35	45	80	26
Tk: Tioga	I	115	30	45	80	22

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Corn silage
		Bu	Bu	Bu	Bu	Tons
Tm:						
Tioga-----------	IIw	---	---	---	---	---
To:						
Tioga-----------	I	---	---	---	---	---
Urban land.						
TsB:						
Titusville------	IIe	95	35	43	70	19
TsC:						
Titusville------	IIIe	85	30	40	60	17
Ug:						
Udorthents, loamy.						
Uh:						
Udorthents, loamy-skeletal.						
Up:						
Udorthents.						
Pits.						
WaA:						
Watertown-------	IIIs	90	20	25	40	18
WaB:						
Watertown-------	IIIs	85	18	22	38	17
WaC:						
Watertown-------	IIIe	80	---	20	34	16
WaD:						
Watertown-------	VIe	---	---	---	---	---
WaF:						
Watertown-------	VIIe	---	---	---	---	---
Wb:						
Wappinger-------	I	120	28	45	80	22
WeC:						
Wellston--------	IIIe	95	---	38	60	19
WhC:						
Westmoreland----	IIIe	95	---	42	70	19
WhD:						
Westmoreland----	IVe	85	---	35	60	17
WhE:						
Westmoreland----	VIe	---	---	---	---	---
WnA:						
Wheeling--------	I	130	40	48	75	26
WnB:						
Wheeling--------	IIe	125	38	48	72	25
Zp:						
Zipp------------	IVw	75	26	---	---	16

Table 7.--Capability Classes and Subclasses

(Miscellaneous areas are excluded. Absence of an entry indicates no acreage.)

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	15,531	---	---	---
II	46,615	18,765	25,446	2,404
III	82,307	66,745	5,996	9,566
IV	105,901	98,686	327	6,888
V	159	---	159	---
VI	67,774	56,144	---	11,630
VII	37,661	30,966	---	6,695
VIII	---	---	---	---

Table 8.--Pasture and Hayland Suitability and Production

(Yields or productivity levels are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited or the crop is not grown on the soil.)

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
AaB:					
Aaron---------	A-6	5.0	4.5	4.0	3.0
AaC2:					
Aaron---------	A-6	4.5	4.0	3.8	2.6
AfB:					
Alford--------	A-6	5.5	5.6	5.5	4.0
AfC2:					
Alford--------	A-6	4.5	5.2	5.0	3.5
BgB:					
Bethesda------	B-4	2.4	---	2.2	---
BgD:					
Bethesda------	B-4	2.0	---	1.7	---
BgE:					
Bethesda------	E-2	---	---	---	---
BhB:					
Bethesda------	E-3	---	---	---	---
BhD:					
Bethesda------	E-3	---	---	---	---
BhF:					
Bethesda------	H-1	---	---	---	---
BrD:					
Brownsville---	B-1	3.3	3.8	2.7	2.4
BrE:					
Brownsville---	B-2	2.0	---	---	---
BrF:					
Brownsville---	H-1	---	---	---	---
BtF:					
Brownsville---	H-1	---	---	---	---
Rock outcrop.					
CdA:					
Caneada-------	C-2	3.5	4.0	3.5	4.3
CfA:					
Chili---------	A-1	5.5	6.0	4.5	3.5
CfB:					
Chili---------	A-1	5.5	6.0	4.5	3.5
CfC:					
Chili---------	A-1	4.8	5.6	4.3	3.8
CfD:					
Chili---------	A-2	4.2	5.0	3.8	3.0

Table 8.--Pasture and Hayland Suitability and Production--Continued

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
CfE:					
Chili----------	A-3	2.3	---	---	---
CgA:					
Chili.					
Urban land.					
CgB:					
Chili.					
Urban land.					
ChA:					
Cidermill-----	A-1	6.0	6.6	6.5	3.8
ChB:					
Cidermill-----	A-1	6.0	6.6	6.5	3.8
CkC:					
Clarksburg----	F-3	3.7	4.2	3.6	2.8
CkD:					
Clarksburg----	F-3	3.5	3.6	3.3	2.5
CoB:					
Coshocton-----	A-6	5.0	5.2	4.8	3.0
CoC2:					
Coshocton-----	A-6	4.8	4.5	4.2	2.6
CoD:					
Coshocton-----	A-2	4.0	3.8	3.5	2.4
CoE:					
Coshocton-----	A-3	2.0	---	---	---
CpC:					
Coshocton-----	A-4	2.3	---	---	---
CpD:					
Coshocton-----	A-4	2.0	---	---	---
CrD------------ Coshocton-Rigley	A-2	3.5	3.3	2.8	2.3
CrE------------ Coshocton-Rigley	A-3	3.0	---	---	---
CsD------------ Coshocton-Westmoreland	A-2	4.0	3.8	4.0	2.4
CsE------------ Coshocton-Westmoreland	A-3	2.0	---	---	---
DeC:					
Dekalb--------	F-1	1.7	---	---	---

Table 8.--Pasture and Hayland Suitability and Production--Continued

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
Ds:					
Dumps.					
EuA:					
Euclid--------	C-3	4.8	5.0	5.0	3.5
FaB:					
Fairpoint-----	B-4	1.7	---	2.2	---
FaD:					
Fairpoint-----	B-4	1.2	---	1.7	---
FaE:					
Fairpoint-----	E-2	1.0	---	---	---
FeB:					
Farmerstown---	B-4	3.7	4.0	3.8	2.4
FeC:					
Farmerstown---	B-4	3.4	3.5	3.3	1.8
FhA:					
Fitchville----	C-1	5.3	5.0	4.5	3.8
FhB:					
Fitchville----	C-1	5.3	5.0	4.5	3.8
GdB:					
Germano-------	F-1	3.8	4.5	4.0	3.2
GdC2:					
Germano-------	F-1	3.5	4.0	3.5	2.7
GhB:					
Gilpin--------	F-1	4.0	4.7	3.8	3.5
GhC:					
Gilpin--------	F-1	3.8	4.5	3.5	3.2
GhD:					
Gilpin--------	F-1	3.2	3.8	3.2	2.5
GnA:					
Glenford------	A-6	5.0	6.0	5.0	3.5
GnB:					
Glenford------	A-6	5.0	6.0	5.0	3.5
GnC:					
Glenford------	A-6	4.2	5.5	4.5	3.0
GpA:					
Glenford------	A-5	3.5	5.0	4.8	3.3
GuC:					
Guernsey------	A-6	4.5	4.0	4.2	2.8
GuD:					
Guernsey------	A-2	4.0	3.5	3.6	2.5
HaD:					
Hazleton------	B-1	3.5	3.5	3.0	2.6

Table 8.--Pasture and Hayland Suitability and Production--Continued

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
HaE:					
Hazleton	B-2	1.0	---	---	---
HaF:					
Hazleton	H-1	---	---	---	---
HeF:					
Hazleton	H-1	---	---	---	---
HoB:					
Homewood	F-3	4.8	5.8	4.5	3.2
HoC:					
Homewood	F-3	4.5	5.2	4.0	3.0
Ht:					
Huntington	A-5	6.8	6.0	5.5	4.2
JmA:					
Jimtown	C-1	5.3	5.0	4.2	3.8
KeB:					
Keene	A-6	5.3	4.7	4.5	3.6
KeC:					
Keene	A-6	5.0	4.3	4.0	3.2
La:					
Landes	A-5	4.5	5.5	3.5	3.0
Lb:					
Landes	A-5	4.5	5.2	3.5	3.0
Lo:					
Lobdell	A-5	5.6	4.5	4.5	3.6
LrB:					
Loudon	A-6	5.0	4.5	4.0	3.6
LrC:					
Loudon	A-6	4.5	4.0	3.5	3.1
LvC:					
Loudonville	F-1	4.8	5.2	4.0	2.6
LvD:					
Loudonville	F-1	4.1	4.8	3.2	2.0
MaB:					
Markland	F-5	3.5	4.5	3.5	3.0
MaC:					
Markland	F-5	3.5	4.0	3.0	2.5
MaD2:					
Markland	F-6	2.5	---	---	---
Mg:					
Melvin	C-3	4.2	---	3.0	3.0
Mh:					
Melvin	C-3	---	---	---	---

Table 8.--Pasture and Hayland Suitability and Production--Continued

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
MnA: Mentor	A-6	6.0	6.5	5.5	4.5
MnB: Mentor	A-6	6.0	6.5	5.5	4.5
MnC: Mentor	A-6	5.5	6.0	5.0	4.0
MnD: Mentor	A-2	4.0	4.8	---	---
Ne: Newark	C-3	5.3	5.0	4.5	4.0
Nf: Newark	C-3	4.5	4.2	3.5	3.2
Nn: Nolin	A-5	6.0	6.2	6.0	4.2
No: Nolin	A-5	5.8	5.5	5.0	3.5
Or: Orrville	C-3	5.3	5.0	4.2	3.2
Pg: Pits, gravel.					
Ph: Pits, quarry.					
RcC: Richland	A-1	5.0	4.2	3.5	3.0
RcD: Richland	A-2	4.5	3.8	3.0	2.5
RgC: Rigley	A-1	4.5	4.6	3.0	2.5
RgD: Rigley	A-2	4.2	3.8	2.5	2.0
RgE: Rigley	A-3	3.6	---	---	---
RhD: Rigley	A-4	3.0	---	---	---
Se: Sebring	C-2	5.0	---	3.0	3.0
Th: Tioga	A-5	5.5	6.0	4.8	4.0
Tk: Tioga	A-5	5.3	5.8	4.5	3.4
Tm: Tioga	A-5	4.5	3.8	4.3	3.0

Table 8.--Pasture and Hayland Suitability and Production--Continued

Map symbol and soil name	Suitability group	Kentucky bluegrass	Alfalfa	Alfalfa-orchardgrass	Red clover-timothy
		AUM	Tons	Tons	Tons
To:					
Tioga.					
Urban land.					
TsB:					
Titusville	F-3	4.6	5.5	3.8	3.3
TsC:					
Titusville	F-3	4.2	5.0	3.5	3.0
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeletal.					
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown	B-1	3.0	3.2	3.2	2.2
WaB:					
Watertown	B-1	3.0	3.2	3.2	2.2
WaC:					
Watertown	B-1	2.8	2.8	3.0	2.1
WaD:					
Watertown	B-1	2.4	2.5	2.8	1.9
WaF:					
Watertown	H-1	2.0	---	---	---
Wb:					
Wappinger	A-5	5.0	5.5	5.0	3.6
WeC:					
Wellston	A-6	4.6	4.1	4.6	3.5
WhC:					
Westmoreland	A-1	5.0	4.5	3.8	2.8
WhD:					
Westmoreland	A-2	4.5	4.0	3.5	2.4
WhE:					
Westmoreland	A-3	3.0	---	---	---
WnA:					
Wheeling	A-1	6.0	6.5	6.0	4.5
WnB:					
Wheeling	A-1	6.0	6.5	6.0	4.5
Zp:					
Zipp	C-3	3.5	2.8	3.0	2.5

Table 9.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban and built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AaB	Aaron silt loam, 2 to 6 percent slopes
AfB	Alford silt loam, 2 to 6 percent slopes
CfA	Chili loam, 0 to 2 percent slopes
CfB	Chili loam, 2 to 6 percent slopes
ChA	Cidermill silt loam, 0 to 2 percent slopes
ChB	Cidermill silt loam, 2 to 6 percent slopes
CoB	Coshocton silt loam, 2 to 6 percent slopes
EuA	Euclid silt loam, occasionally flooded (where drained)
FhA	Fitchville silt loam, 0 to 2 percent slopes (where drained)
FhB	Fitchville silt loam, 2 to 6 percent slopes (where drained)
GdB	Germano sandy loam, 2 to 6 percent slopes
GhB	Gilpin silt loam, 2 to 6 percent slopes
GnA	Glenford silt loam, 0 to 2 percent slopes
GnB	Glenford silt loam, 2 to 6 percent slopes
GpA	Glenford silt loam, occasionally flooded
HoB	Homewood silt loam, 2 to 6 percent slopes
Ht	Huntington silt loam, rarely flooded
JmA	Jimtown loam, 0 to 2 percent slopes (where drained)
KeB	Keene silt loam, 2 to 6 percent slopes
La	Landes sandy loam, rarely flooded
Lb	Landes loam, occasionally flooded
Lo	Lobdell silt loam, occasionally flooded
LrB	Loudon silt loam, 2 to 6 percent slopes
MaB	Markland silt loam, 2 to 6 percent slopes
Mg	Melvin silt loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
MnA	Mentor silt loam, 0 to 2 percent slopes
MnB	Mentor silt loam, 2 to 6 percent slopes
Ne	Newark silt loam, occasionally flooded (where drained)
Nf	Newark silt loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
Nn	Nolin silt loam, rarely flooded
No	Nolin silt loam, occasionally flooded
Or	Orrville silt loam, occasionally flooded (where drained)
Se	Sebring silt loam (where drained)
Th	Tioga fine sandy loam, rarely flooded
Tk	Tioga fine sandy loam, occasionally flooded
Tm	Tioga fine sandy loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
TsB	Titusville silt loam, 2 to 6 percent slopes
Wb	Wappinger sandy loam, rarely flooded
WnA	Wheeling silt loam, 0 to 2 percent slopes
WnB	Wheeling silt loam, 2 to 6 percent slopes
Zp	Zipp silty clay loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)

Table 10.--Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
AaB	4C	Slight	Slight	Slight	Severe	chinkapin oak	81	4	white ash,
Aaron						hickory	---	---	northern red oak,
						black walnut	---	---	yellow-poplar,
						eastern redcedar	---	---	eastern white pine,
						black oak	85	5	white oak
						sugar maple	---	---	
						black locust	78	---	
						American elm	---	---	
						white ash	76	---	
						northern red oak	---	---	
AaC2	4C	Slight	Severe	Slight	Severe	chinkapin oak	81	4	white ash,
Aaron						hickory	---	---	northern red oak,
						black walnut	---	---	yellow-poplar,
						eastern redcedar	---	---	eastern white pine,
						black oak	85	5	white oak
						sugar maple	---	---	
						black locust	78	---	
						American elm	---	---	
						white ash	76	---	
						northern red oak	---	---	
AfB	5A	Slight	Slight	Slight	Severe	white oak	90	5	yellow-poplar,
Alford						yellow-poplar	105	8	white oak,
						northern red oak	---	---	northern red oak,
									white ash,
									black walnut,
									red pine,
									eastern white pine,
									black cherry,
									black locust
AfC2	5A	Slight	Slight	Slight	Severe	white oak	90	5	yellow-poplar,
Alford						yellow-poplar	105	8	white oak,
						northern red oak	---	---	northern red oak,
									white ash,
									black walnut,
									red pine,
									eastern white pine,
									black cherry,
									black locust

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
BgB--------------------	---	Slight	Moderate	Slight	Moderate	---	---	---	red maple,
Bethesda									red pine,
									eastern white pine,
									Scotch pine,
									black cherry,
									black locust
BgD--------------------	---	Moderate	Moderate	Slight	Moderate	---	---	---	red maple,
Bethesda									red pine,
									eastern white pine,
									Scotch pine,
									black cherry,
									black locust
BgE--------------------	---	Moderate	Moderate	Slight	Moderate	---	---	---	red maple,
Bethesda									red pine,
									eastern white pine,
									Scotch pine,
									black cherry,
									black locust
BhB--------------------	4F	Slight	Severe	Slight	Moderate	northern red oak---	70	4	white ash,
Bethesda						black cherry-------	---	---	yellow-poplar,
						white ash----------	---	---	northern red oak,
						yellow-poplar------	90	6	black locust,
						red maple----------	---	---	red pine,
						black locust-------	75	---	eastern white pine
BhD--------------------	4R	Moderate	Severe	Slight	Moderate	northern red oak---	70	4	white ash,
Bethesda						black cherry-------	---	---	yellow-poplar,
						white ash----------	---	---	northern red oak,
						yellow-poplar------	90	6	black locust,
						red maple----------	---	---	red pine,
						black locust-------	75	---	eastern white pine
BhF--------------------	4R	Severe	Severe	Slight	Moderate	northern red oak---	70	4	white ash,
Bethesda						black cherry-------	---	---	yellow-poplar,
						white ash----------	---	---	northern red oak,
						yellow-poplar------	90	6	black locust,
						red maple----------	---	---	red pine,
						black locust-------	75	---	eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
BrD-------------------- Brownsville (north aspect)	4R	Slight	Moderate	Slight	Moderate	northern red oak---	75	4	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	85	6	red pine,
									eastern white pine,
									Virginia pine,
									black oak
BrD-------------------- Brownsville (south aspect)	3R	Slight	Moderate	Slight	Moderate	northern red oak---	55	3	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	75	4	red pine,
									eastern white pine,
									Virginia pine,
									black oak
BrE-------------------- Brownsville (north aspect)	4R	Slight	Moderate	Slight	Moderate	northern red oak---	75	4	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	85	6	red pine,
									eastern white pine,
									Virginia pine,
									black oak
BrE-------------------- Brownsville (south aspect)	3R	Slight	Moderate	Slight	Moderate	northern red oak---	55	3	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	75	4	red pine,
									eastern white pine,
									Virginia pine,
									black oak
BrF-------------------- Brownsville (north aspect)	4R	Moderate	Moderate	Slight	Moderate	northern red oak---	75	4	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	85	6	red pine,
									eastern white pine,
									Virginia pine,
									black oak
BrF-------------------- Brownsville (south aspect)	3R	Moderate	Severe	Slight	Moderate	northern red oak---	55	3	yellow-poplar,
						white oak----------	---	---	white ash,
						yellow-poplar------	75	4	red pine,
									eastern white pine,
									Virginia pine,
									black oak

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
BtF:									
Brownsville (north aspect)	4R	Moderate	Moderate	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						white oak	---	---	white ash,
						yellow-poplar	85	6	red pine,
									eastern white pine,
									Virginia pine,
									black oak
Rock outcrop.									
BtF:									
Brownsville (south aspect)	3R	Moderate	Severe	Slight	Moderate	northern red oak	55	3	yellow-poplar,
						white oak	---	---	white ash,
						yellow-poplar	75	4	red pine,
									eastern white pine,
									Virginia pine,
									black oak
Rock outcrop.									
CdA:									
Caneadea	4C	Slight	Severe	Severe	Severe	northern red oak	70	3	red maple,
						white ash	---	---	green ash,
						black cherry	---	---	yellow-poplar,
						white oak	---	---	Austrian pine,
						sugar maple	65	4	American sycamore,
						slippery elm	---	---	eastern cottonwood,
						red maple	---	---	pin oak,
									black oak
CfA:									
Chili	4A	Slight	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CfB:									
Chili	4A	Slight	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
CfC:									
Chili	4A	Slight	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
CfD:									
Chili	4R	Moderate	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CfE:									
Chili	4R	Moderate	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
CgA:									
Chili	4A	Slight	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
Urban land.									
CgB:									
Chili	4A	Slight	Slight	Slight	Moderate	white oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
Urban land.									

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
ChA:									
Cidermill	5A	Slight	Slight	Slight	Severe	northern red oak	90	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
ChB:									
Cidermill	5A	Slight	Slight	Slight	Severe	northern red oak	90	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	85	5	Norway spruce,
						sugar maple	---	---	white spruce,
									red pine,
									eastern white pine,
									Scotch pine
CkC:									
Clarksburg	4A	Slight	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						yellow-poplar	85	6	Japanese larch,
									Norway spruce,
									eastern white pine
CkD:									
Clarksburg	4R	Moderate	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						yellow-poplar	85	6	Japanese larch,
									Norway spruce,
									eastern white pine
CoB:									
Coshocton	4A	Slight	Slight	Slight	Severe	northern red oak	80	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						white oak	75	4	red pine,
						northern red oak	80	4	eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CoC2:									
Coshocton	4A	Slight	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northen red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
CoD: Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
CoD: Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						northern red oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
CoE: Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
CoE: Coshocton (south asepct)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						sugar maple	---	---	red pine,
						northern red oak	---	---	eastern white pine
CpC:									
Coshocton	4A	Slight	Slight	Slight	Severe	white oak	75	4	white ash,
						scarlet oak	---	---	yellow-poplar,
						white ash	---	---	Virginia pine,
						yellow-poplar	---	---	red pine,
						Virginia pine	---	---	eastern white pine,
									northern red oak

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CpD: Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						scarlet oak	---	---	yellow-poplar,
						white ash	---	---	Virginia pine,
						yellow-poplar	---	---	red pine,
						Virginia pine	---	---	eastern white pine,
									northern red oak
CpD: Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						scarlet oak	---	---	yellow-poplar,
						white ash	---	---	Virginia pine,
						yellow-poplar	---	---	red pine,
						Virginia pine	---	---	eastern white pine,
									northern red oak
CrD:									
Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
Rigley (north aspect)	4R	Moderate	Slight	Slight	Moderate	white oak	75	4	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	78	4	white oak,
						yellow-poplar	94	7	northern red oak,
						shortleaf pine	80	9	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
CrD:									
Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						sugar maple	---	---	red pine,
						northern red oak	---	---	eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	Trees to plant
		Management concerns				Potential productivity			
CrD:									
Rigley (south aspect)	3R	Moderate	Moderate	Slight	Moderate	white oak	65	3	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						shortleaf pine	---	---	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
CrE:									
Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
Rigley (north aspect)	4R	Moderate	Slight	Slight	Moderate	white oak	75	4	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	78	4	white oak,
						yellow-poplar	94	7	northern red oak,
						shortleaf pine	80	9	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
CrE:									
Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						sugar maple	---	---	red pine,
						northern red oak	---	---	eastern white pine
Rigley (south aspect)	3R	Moderate	Moderate	Slight	Moderate	white oak	65	3	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						shortleaf pine	---	---	eastern white pine
						hickory	---	---	
						northern red oak	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CsD:									
Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	white oak	75	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						northern red oak	80	4	red pine,
						sugar maple	---	---	eastern white pine
Westmoreland (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	81	4	yellow-poplar,
						yellow-poplar	90	6	eastern white pine,
						eastern white pine	75	10	black walnut
CsD:									
Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						sugar maple	---	---	red pine,
						northern red oak	---	---	eastern white pine
Westmoreland (south aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	70	4	yellow-poplar,
						yellow-poplar	---	---	eastern white pine,
						eastern white pine	---	---	black walnut
CsE:									
Coshocton (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	80	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						white oak	75	4	red pine,
						sugar maple	---	---	eastern white pine
Westmoreland (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	81	4	yellow-poplar,
						yellow-poplar	90	6	eastern white pine,
						eastern white pine	75	10	black walnut

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
CsE:									
Coshocton (south aspect)	3R	Moderate	Moderate	Slight	Severe	white oak	65	3	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						sugar maple	---	---	red pine,
						northern red oak	---	---	eastern white pine
Westmoreland (south aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	70	4	yellow-poplar,
						yellow-poplar	---	---	eastern white pine,
						eastern white pine	---	---	black walnut
DeC:									
Dekalb	3F	Slight	Moderate	Slight	Moderate	northern red oak	57	3	Japanese larch,
									Austrian pine,
									red pine,
									eastern white pine
EuA:									
Euclid	5A	Slight	Slight	Slight	Severe	pin oak	86	5	white ash,
						black cherry	---	---	yellow-poplar,
						northern red oak	80	4	white oak,
						white ash	---	---	northern red oak,
						yellow-poplar	---	---	red pine,
						white oak	---	---	eastern white pine
						sugar maple	---	---	
FaB:									
Fairpoint	---	Slight	Moderate	Slight	Moderate	---	---	---	yellow-poplar,
									Norway spruce,
									white spruce,
									blue spruce,
									eastern white pine,
									Scotch pine,
									black locust

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
FaD:									
Fairpoint	---	Moderate	Moderate	Slight	Moderate	---	---	---	yellow-poplar, Norway spruce, white spruce, blue spruce, eastern white pine, Scotch pine, black locust
FaE:									
Fairpoint	---	Moderate	Moderate	Slight	Moderate	---	---	---	yellow-poplar, Norway spruce, white spruce, blue spruce, eastern white pine, Scotch pine, black locust
FeB:									
Farmerstown	---	Slight	Moderate	Slight	Moderate	---	---	---	yellow-poplar, red pine, eastern white pine, Scotch pine, northern red oak
FeC:									
Farmerstown	---	Slight	Moderate	Slight	Moderate	---	---	---	yellow-poplar, red pine, eastern white pine, Scotch pine, northern red oak
FhA:									
Fitchville	5A	Slight	Slight	Slight	Severe	pin oak	90	5	yellow-poplar, northern red oak, white ash, green ash, Norway spruce, white spruce, red pine, eastern white pine, Scotch pine, white oak
						northern red oak	80	4	
						yellow-poplar	---	---	
						sugar maple	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
FhB:									
Fitchville	5A	Slight	Slight	Slight	Severe	pin oak	90	5	yellow-poplar,
						northern red oak	80	4	northern red oak,
						yellow-poplar	---	---	white ash,
						sugar maple	---	---	green ash,
									Norway spruce,
									white spruce,
									red pine,
									eastern white pine,
									Scotch pine,
									white oak
GdB:									
Germano	4D	Slight	Slight	Moderate	Moderate	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
GdC2:									
Germano	4D	Slight	Slight	Moderate	Moderate	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	90	6	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
GhB:									
Gilpin	4A	Slight	Slight	Slight	Moderate	northern red oak	80	4	yellow-poplar,
						yellow-poplar	95	7	Japanese larch,
								---	eastern white pine,
									Virginia pine,
									black cherry
GhC:									
Gilpin	4A	Slight	Slight	Slight	Moderate	northern red oak	80	4	yellow-poplar,
						yellow-poplar	95	7	Japanese larch,
									eastern white pine,
									Virginia pine,
									black cherry

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
GhD:									
Gilpin (north aspect)	4R	Moderate	Slight	Slight	Moderate	northern red oak	80	4	yellow-poplar,
						yellow-poplar	95	7	Japanese larch,
									eastern white pine,
									Virginia pine,
									black cherry
GhD:									
Gilpin (south aspect)	4R	Moderate	Moderate	Slight	Moderate	northern red oak	70	4	yellow-poplar,
						yellow-poplar	---	---	Japanese larch,
									eastern white pine,
									Virginia pine,
									black cherry
GnA:									
Glenford	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	96	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	Norway spruce,
									blue spruce,
									red pine,
									eastern white pine,
									Scotch pine
GnB:									
Glenford	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	96	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	Norway spruce,
									blue spruce,
									red pine,
									eastern white pine,
									Scotch pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
GnC:									
Glenford	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	96	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	Norway spruce,
									blue spruce,
									red pine,
									eastern white pine,
									Scotch pine
GpA:									
Glenford	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	96	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	Norway spruce,
									blue spruce,
									red pine,
									eastern white pine,
									Scotch pine
GuC:									
Guernsey	4A	Slight	Slight	Slight	Severe	northern red oak	78	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	95	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	red pine,
									eastern white pine
GuD:									
Guernsey (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	78	4	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	95	7	northern red oak,
						white oak	---	---	green ash,
						sugar maple	---	---	red pine,
									eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
GuD: Guernsey (south aspect)	4R	Moderate	Moderate	Slight	Severe	northern red oak	70	4	white ash, yellow-poplar, white oak, northern red oak, green ash, red pine, eastern white pine
						black cherry	---	---	
						white ash	---	---	
						yellow-poplar	---	---	
						white oak	65	3	
						sugar maple	---	---	
HaD: Hazleton (north aspect)	4R	Slight	Slight	Slight	Moderate	northern red oak	70	4	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	80	5	
HaD: Hazleton (south aspect)	3R	Slight	Moderate	Slight	Slight	northern red oak	60	3	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	---	---	
						black oak	60	3	
HaE: Hazleton (north aspect)	4R	Slight	Slight	Slight	Moderate	northern red oak	70	4	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	80	5	
HaE: Hazleton (south aspect)	3R	Slight	Moderate	Slight	Slight	northern red oak	60	3	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	---	---	
						black oak	60	3	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
HaF: Hazleton (north aspect)	4R	Moderate	Slight	Slight	Moderate	northern red oak	70	4	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	80	5	
HaF: Hazleton (south aspect)	3R	Moderate	Severe	Slight	Slight	northern red oak	60	3	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	70	4	
HeF: Hazleton (north aspect)	4R	Moderate	Slight	Slight	Moderate	northern red oak	70	4	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	80	5	
HeF: Hazleton (south aspect)	3R	Moderate	Severe	Slight	Slight	northern red oak	60	3	Japanese larch, Norway spruce, Austrian pine, eastern white pine, black cherry
						yellow-poplar	70	4	
HoB: Homewood	5D	Slight	Slight	Moderate	Moderate	northern red oak	93	5	white ash, yellow-poplar, red pine, eastern white pine, Virginia pine, black oak
						American beech	---	---	
						American sycamore	---	---	
						white oak	---	---	
						sugar maple	---	---	
						slippery elm	---	---	
						white ash	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
HoC:									
Homewood	5D	Slight	Slight	Moderate	Moderate	northern red oak	93	5	white ash,
						American beech	---	---	yellow-poplar,
						American sycamore	---	---	red pine,
						white oak	---	---	eastern white pine,
						sugar maple	---	---	Virginia pine,
						slippery elm	---	---	black oak
						white ash	---	---	
Ht:									
Huntington	5A	Slight	Slight	Slight	Severe	northern red oak	85	5	yellow-poplar,
						yellow-poplar	95	7	black walnut,
									eastern white pine,
									black locust
JmA:									
Jimtown	5A	Slight	Slight	Slight	Moderate	northern red oak	85	5	white ash,
						white ash	---	---	yellow-poplar,
						yellow-poplar	---	---	black cherry,
						black cherry	---	---	white oak,
						white oak	---	---	northern red oak,
						sugar maple	---	---	red pine,
									eastern white pine,
									Scotch pine,
									American sycamore,
									black locust
KeB:									
Keene	4A	Slight	Slight	Slight	Severe	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	95	7	northern red oak,
						white oak	75	4	red pine,
						sugar maple	---	---	eastern white pine
KeC:									
Keene	4A	Slight	Slight	Slight	Severe	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	95	7	northern red oak,
						white oak	75	4	red pine,
						sugar maple	---	---	eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
La:									
Landes	5A	Slight	Slight	Slight	Severe	northern red oak	85	5	green ash,
						sweetgum	---	---	sweetgum
						yellow-poplar	95	7	yellow-poplar,
						American sycamore	---	---	American sycamore,
						eastern cottonwood	105	10	eastern cottonwood,
						green ash	---	---	northern red oak,
									sugar maple,
									black walnut,
									eastern white pine
Lb:									
Landes	5A	Slight	Slight	Slight	Severe	northern red oak	85	5	green ash,
						sweetgum	---	---	sweetgum
						yellow-poplar	95	7	yellow-poplar,
						American sycamore	---	---	American sycamore,
						eastern cottonwood	105	10	eastern cottonwood,
						green ash	---	---	northern red oak,
									sugar maple,
									black walnut,
									eastern white pine
Lo:									
Lobdell	5A	Slight	Slight	Slight	Severe	northern red oak	87	5	white ash,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						yellow-poplar	96	7	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
LrB:									
Loudon	4C	Slight	Moderate	Severe	Severe	white oak	68	4	red maple,
						black cherry	---	---	green ash,
						white ash	---	---	yellow-poplar,
						slippery elm	---	---	Austrian pine,
						red maple	---	---	American sycamore,
									eastern cottonwood,
									pin oak,
									black oak

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
LrC:									
Loudon	4C	Slight	Moderate	Severe	Severe	white oak	68	4	red maple,
						black cherry	---	---	green ash,
						white ash	---	---	yellow-poplar,
						slippery elm	---	---	Austrian pine,
						red maple	---	---	American sycamore,
									eastern cottonwood,
									pin oak,
									black oak
LvC:									
Loudonville	4D	Slight	Slight	Moderate	Moderate	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						black oak	---	---	yellow-poplar,
						white ash	---	---	white oak,
						black walnut	---	---	northern red oak,
						yellow-poplar	---	---	red pine,
						white oak	75	4	eastern white pine
						sugar maple	---	---	
LvD:									
Loudonville	4R	Moderate	Slight	Moderate	Moderate	northern red oak	80	4	white ash,
						black cherry	---	---	black walnut,
						black oak	---	---	yellow-poplar,
						white ash	---	---	white oak,
						black walnut	---	---	northern red oak,
						yellow-poplar	---	---	red pine,
						white oak	75	4	eastern white pine
						sugar maple	---	---	
MaB:									
Markland	4C	Slight	Slight	Slight	Severe	northern red oak	76	4	yellow-poplar,
						red pine	84	12	red pine,
						white oak	75	4	white oak,
						yellow-poplar	105	8	northern red oak,
									red maple,
									white ash,
									eastern white pine,
									Virginia pine,
									black oak,
									black locust

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
MaC:									
Markland	4C	Moderate	Slight	Slight	Severe	northern red oak	76	4	yellow-poplar,
						red pine	84	12	red pine,
						white oak	75	4	white oak,
						yellow-poplar	105	8	northern red oak,
									red maple,
									white ash,
									eastern white pine,
									Virginia pine,
									black oak,
									black locust
MaD2:									
Markland	4R	Moderate	Slight	Slight	Severe	northern red oak	76	4	yellow-poplar,
						red pine	84	12	red pine,
						white oak	75	4	white oak,
						yellow-poplar	105	8	northern red oak,
									red maple,
									white ash,
									eastern white pine,
									Virginia pine,
									black oak,
									black locust
Mg:									
Melvin	6W	Slight	Moderate	Severe	Severe	pin oak	99	6	green ash,
						hickory	---	---	sweetgum,
						hackberry	---	---	eastern cottonwood,
						American elm	---	---	pin oak,
						green ash	---	---	American sycamore,
						sweetgum	90	7	baldcypress
						eastern cottonwood	101	9	
						red maple	---	---	
Mh:									
Melvin	5W	Slight	Severe	Severe	Severe	pin oak	90	5	pin oak,
						hickory	---	---	sweetgum,
						hackberry	---	---	baldcypress
						American sycamore	---	---	
						eastern cottonwood	---	---	
						black willow	---	---	
						red maple	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
MnA:									
Mentor	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
MnB:									
Mentor	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
MnC:									
Mentor	5A	Slight	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
MnD:									
Mentor	5R	Moderate	Slight	Slight	Severe	northern red oak	86	5	white ash,
						black cherry	---	---	black walnut,
						white ash	---	---	yellow-poplar,
						black walnut	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						white oak	---	---	red pine,
						sugar maple	---	---	eastern white pine
Ne:									
Newark	5W	Slight	Slight	Moderate	Severe	pin oak	96	5	sweetgum,
						cherrybark oak	---	---	eastern cottonwood,
						overcup oak	---	---	American sycamore
						green ash	---	---	
						Shumard oak	---	---	
						sweetgum	85	6	
						eastern cottonwood	89	7	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordi- nation symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortal- ity	Management concerns: Wind- throw hazard	Management concerns: Plant competi- tion	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Produc- tivity class*	Trees to plant
Nf:									
Newark	5W	Slight	Slight	Moderate	Severe	pin oak	96	5	sweetgum,
						cherrybark oak	---	---	eastern cottonwood,
						overcup oak	---	---	American sycamore
						green ash	---	---	
						Shumard oak	---	---	
						sweetgum	85	6	
						eastern cottonwood	89	7	
Nn:									
Nolin	5A	Slight	Slight	Slight	Severe	northern red oak	90	5	black walnut,
						American sycamore	---	---	sweetgum,
						black walnut	---	---	yellow-poplar,
						sweetgum	92	8	eastern cottonwood,
						yellow-poplar	107	8	cherrybark oak,
						eastern cottonwood	---	---	northern red oak,
						cherrybark oak	97	10	white ash,
						river birch	---	---	eastern white pine
No:									
Nolin	5A	Slight	Slight	Slight	Severe	northern red oak	90	5	black walnut,
						American sycamore	---	---	sweetgum,
						black walnut	---	---	yellow-poplar,
						sweetgum	92	8	eastern cottonwood,
						yellow-poplar	107	8	cherrybark oak,
						eastern cottonwood	---	---	northern red oak,
						cherrybark oak	97	10	white ash,
						river birch	---	---	eastern white pine
Or:									
Orrville	5A	Slight	Slight	Slight	Severe	pin oak	85	5	white ash,
						black cherry	---	---	yellow-poplar,
						northern red oak	80	4	white oak,
						white ash	---	---	northern red oak,
						yellow-poplar	90	6	green ash,
						white oak	---	---	Norway spruce,
						sugar maple	80	4	white spruce,
									red pine,
									eastern white pine,
									Scotch pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
RcC:									
Richland	5A	Slight	Slight	Slight	Moderate	northern red oak	85	5	white ash,
						black walnut	---	---	black walnut,
						yellow-poplar	95	7	yellow-poplar,
						white ash	---	---	northern red oak,
									red pine,
									eastern white pine,
									white oak
RcD:									
Richland (north aspect)	5R	Moderate	Slight	Slight	Moderate	northern red oak	85	5	white ash,
						black walnut	---	---	black walnut,
						yellow-poplar	95	7	yellow-poplar,
						white ash	---	---	northern red oak,
									red pine,
									eastern white pine,
									white oak
RcD:									
Richland (south aspect)	4R	Moderate	Moderate	Slight	Slight	northern red oak	80	4	white ash,
						black walnut	---	---	black walnut,
						yellow-poplar	90	5	yellow-poplar,
						white ash	---	---	northern red oak,
									red pine,
									eastern white pine,
									white oak
RgC:									
Rigley	4A	Slight	Slight	Slight	Moderate	white oak	75	4	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	78	4	white oak,
						yellow-poplar	94	7	northern red oak,
						shortleaf pine	80	9	eastern white pine
						white oak	75	4	
						northern red oak	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
RgD:									
Rigley (north aspect)	4R	Moderate	Slight	Slight	Moderate	white oak	75	4	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	78	4	white oak,
						yellow-poplar	94	7	northern red oak,
						shortleaf pine	80	9	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
RgD:									
Rigley (south aspect)	3R	Moderate	Moderate	Slight	Moderate	white oak	65	3	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						shortleaf pine	---	---	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
RgE:									
Rigley (north aspect)	4R	Moderate	Slight	Slight	Moderate	white oak	75	4	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	78	4	white oak,
						yellow-poplar	94	7	northern red oak,
						shortleaf pine	80	9	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
RgE:									
Rigley (south aspect)	3R	Moderate	Moderate	Slight	Moderate	white oak	65	3	yellow-poplar,
						American beech	---	---	shortleaf pine,
						black oak	---	---	white oak,
						yellow-poplar	---	---	northern red oak,
						shortleaf pine	---	---	eastern white pine
						hickory	---	---	
						northern red oak	---	---	
RhD:									
Rigley (north aspect)	4R	Moderate	Slight	Slight	Moderate	white oak	75	4	shortleaf pine,
						American beech	---	---	eastern white pine,
						hickory	---	---	northern red oak
						black oak	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
RhD:									
Rigley (south aspect)	3R	Moderate	Moderate	Slight	Moderate	white oak	65	3	shortleaf pine,
						American beech	---	---	eastern white pine,
						hickory	---	---	northern red oak
						black oak	---	---	
Se:									
Sebring	5W	Slight	Severe	Severe	Severe	pin oak	90	5	red maple,
						red maple	---	---	green ash,
						green ash	---	---	eastern cottonwood,
						eastern cottonwood	---	---	swamp white oak,
						swamp white oak	---	---	pin oak,
						black cherry	---	---	sweetgum
									Norway spruce,
									eastern white pine,
									Scotch pine,
									American sycamore
Th:									
Tioga	4A	Slight	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						sugar maple	67	3	black walnut,
						yellow-poplar	85	6	European larch,
									Norway spruce,
									eastern white pine
Tk:									
Tioga	4A	Slight	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						sugar maple	67	3	black walnut,
						yellow-poplar	85	6	European larch,
									Norway spruce,
									eastern white pine
Tm:									
Tioga	4A	Slight	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						sugar maple	67	3	black walnut,
						yellow-poplar	85	6	European larch,
									Norway spruce,
									eastern white pine

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
To:									
Tioga	4A	Slight	Slight	Slight	Moderate	northern red oak	75	4	yellow-poplar,
						sugar maple	67	3	black walnut,
						yellow-poplar	85	6	European larch,
									Norway spruce,
									eastern white pine
Urban land.									
TsB:									
Titusville	5D	Slight	Slight	Moderate	Moderate	northern red oak	86	5	green ash,
						American beech	---	---	yellow-poplar,
						white ash	---	---	red pine,
						American sycamore	---	---	Virginia pine
						white oak	---	---	
						sugar maple	85	4	
						slippery elm	---	---	
TsC:									
Titusville	5D	Slight	Slight	Moderate	Moderate	northern red oak	86	5	green ash,
						American beech	---	---	yellow-poplar,
						white ash	---	---	red pine,
						American sycamore	---	---	Virginia pine
						white oak	---	---	
						sugar maple	85	4	
						slippery elm	---	---	
WaA:									
Watertown	4A	Slight	Slight	Slight	Moderate	black oak	80	4	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	90	6	jack pine,
						northern red oak	---	---	red pine
						red maple	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
WaB:									
Watertown	4A	Slight	Slight	Slight	Moderate	black oak	80	4	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	90	6	jack pine,
						northern red oak	---	---	red pine
						red maple	---	---	
WaC:									
Watertown	4A	Slight	Slight	Slight	Moderate	black oak	80	4	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	90	6	jack pine,
						northern red oak	---	---	red pine
						red maple	---	---	
WaD:									
Watertown	4R	Slight	Slight	Slight	Moderate	black oak	80	4	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	90	6	jack pine,
						northern red oak	---	---	red pine
						red maple	---	---	
WaF:									
Watertown (north aspect)	4R	Slight	Slight	Slight	Moderate	black oak	80	4	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	90	6	jack pine,
						northern red oak	---	---	red pine
						red maple	---	---	

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
WaF:									
Watertown (south aspect)	3R	Slight	Moderate	Slight	Slight	black oak	60	3	yellow-poplar,
						green ash	---	---	northern red oak,
						quaking aspen	---	---	black oak,
						bur oak	---	---	white ash,
						slippery elm	---	---	black walnut,
						yellow-poplar	---	---	jack pine,
						northern red oak	60	3	red pine
						red maple	---	---	
Wb:									
Wappinger	4A	Slight	Slight	Slight	Severe	northern red oak	75	4	yellow-poplar,
						sugar maple	67	3	black walnut,
						yellow-poplar	85	6	European larch,
									Norway spruce,
									eastern white pine
WeC:									
Wellston	4A	Slight	Slight	Slight	Severe	northern red oak	81	4	white ash,
						Virginia pine	70	8	black walnut,
						black cherry	---	---	yellow-poplar,
						white ash	---	---	white oak,
						black walnut	---	---	northern red oak,
						yellow-poplar	90	6	Fraser fir,
						white oak	---	---	Norway spruce,
						sugar maple	---	---	white spruce,
									eastern white pine,
									Scotch pine
WhC:									
Westmoreland	4A	Slight	Slight	Slight	Severe	northern red oak	75	4	yellow-poplar,
						yellow-poplar	85	6	eastern white pine,
						eastern white pine	70	9	Virginia pine
WhD:									
Westmoreland (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	81	4	yellow-poplar,
						yellow-poplar	90	6	eastern white pine,
						eastern white pine	75	10	black walnut

See footnote at end of table.

Table 10.--Woodland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Erosion hazard	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	Trees to plant
WhD:									
Westmoreland (south aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	70	4	yellow-poplar,
						yellow-poplar	80	5	eastern white pine,
						eastern white pine	65	8	black walnut
WhE:									
Westmoreland (north aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	81	4	yellow-poplar,
						yellow-poplar	90	6	eastern white pine,
						eastern white pine	75	10	black walnut
WhE:									
Westmoreland (south aspect)	4R	Moderate	Slight	Slight	Severe	northern red oak	70	4	yellow-poplar,
						yellow-poplar	80	5	eastern white pine,
						eastern white pine	65	8	black walnut
WnA:									
Wheeling	4A	Slight	Slight	Slight	Severe	northern red oak	80	4	yellow-poplar,
						yellow-poplar	90	6	black walnut,
									eastern white pine
WnB:									
Wheeling	4A	Slight	Slight	Slight	Severe	northern red oak	80	4	yellow-poplar,
						yellow-poplar	90	6	black walnut,
									eastern white pine
Zp:									
Zipp	5W	Slight	Severe	Severe	Severe	pin oak	86	5	sweetgum,
						white oak	75	4	red maple,
						sweetgum	90	7	white ash,
									eastern white pine,
									baldcypress

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 11.--Woodland Harvesting and Regeneration Activities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of “slight,” “moderate,” and “severe.” Absence of an entry indicates the soil was not rated.)

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
AaB, AaC2:				
Aaron	Severe: low strength	Severe: low strength	Slight	Slight
AfB, AfC2:				
Alford	Severe: low strength	Severe: low strength	Slight	Slight
BgB:				
Bethesda	Slight	Slight	Slight	Slight
BgD, BgE:				
Bethesda	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
BhB:				
Bethesda	Moderate: too clayey	Moderate: too clayey	Slight	Slight
BhD:				
Bethesda	Moderate: slope, too clayey	Severe: slope	Moderate: slope	Moderate: slope
BhF:				
Bethesda	Severe: slope	Severe: slope	Severe: slope	Severe: slope
BrD, BrE:				
Brownsville	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
BrF:				
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope
BtF:				
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.				
CdA:				
Caneadea	Severe: wetness, low strength	Severe: wetness, low strength	Severe: wetness	Severe: wetness
CfA, CfB:				
Chili	Slight	Slight	Slight	Slight
CfC:				
Chili	Slight	Moderate: slope	Slight	Slight
CfD, CfE:				
Chili	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
CgA, CgB:				
Chili.				
Urban land.				
ChA, ChB:				
Cidermill	Moderate: low strength	Moderate: low strength	Slight	Slight
CkC:				
Clarksburg	Moderate: low strength	Moderate: slope, low strength	Slight	Slight
CkD:				
Clarksburg	Moderate: low strength, slope	Severe: slope	Moderate: slope	Moderate: slope
CoB, CoC2:				
Coshocton	Severe: low strength	Severe: low strength	Slight	Slight
CoD, CoE:				
Coshocton	Severe: low strength	Severe: slope, low strength	Moderate: slope	Moderate: slope
CpC:				
Coshocton	Severe: low strength	Severe: low strength	Slight	Slight
CpD:				
Coshocton	Severe: low strength	Severe: slope, low strength	Moderate: slope	Moderate: slope
CrD:				
Coshocton	Severe: low strength	Severe: slope, low strength	Moderate: slope	Moderate: slope
Rigley	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
CrE:				
Coshocton	Severe: slope	Severe: slope	Moderate: slope	Moderate: slope
Rigley	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
CsD, CsE:				
Coshocton	Severe: low strength	Severe: slope, low strength	Moderate: slope	Moderate: slope
Westmoreland	Moderate: low strength, slope	Severe: slope	Moderate: slope	Moderate: slope

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for--			
	Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
DeC:				
Dekalb	Moderate: depth to rock	Moderate: slope, depth to rock	Slight	Slight
Ds:				
Dumps.				
EuA:				
Euclid	Severe: wetness, low strength, flooding	Severe: wetness, low strength, flooding	Slight	Slight
FaB:				
Fairpoint	Slight	Slight	Slight	Slight
FaD, FaE:				
Fairpoint	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
FeB:				
Farmerstown	Slight	Slight	Slight	Slight
FeC:				
Farmerstown	Slight	Moderate: slope	Slight	Slight
FhA, FhB:				
Fitchville	Severe: low strength, wetness	Severe: low strength, wetness	Severe: wetness	Severe: wetness
GdB:				
Germano	Moderate: depth to rock	Moderate: depth to rock	Slight	Slight
GdC2:				
Germano	Moderate: depth to rock	Moderate: slope, depth to rock	Slight	Slight
GhB:				
Gilpin	Moderate: depth to rock	Moderate: depth to rock	Slight	Slight
GhC:				
Gilpin	Moderate: depth to rock	Moderate: depth to rock	Slight	Slight
GhD:				
Gilpin	Moderate: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Moderate: slope
GnA, GnB, GnC, GpA:				
Glenford	Severe: low strength	Severe: low strength	Slight	Slight
GuC:				
Guernsey	Severe: low strength	Severe: low strength	Slight	Slight

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
GuD: Guernsey	Severe: low strength, slippage	Severe: slope, low strength, slippage	Moderate: slope	Moderate: slope
HaD, HaE: Hazleton	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
HaF, HeF: Hazleton	Severe: slope	Severe: slope	Severe: slope	Severe: slope
HoB: Homewood	Moderate: low strength	Moderate: low strength	Slight	Slight
HoC: Homewood	Moderate: low strength	Moderate: slope, low strength	Slight	Slight
Ht: Huntington	Moderate: low strength	Moderate: low strength	Slight	Slight
JmA: Jimtown	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
KeB, KeC: Keene	Severe: low strength	Severe: low strength	Slight	Slight
La: Landes	Slight	Slight	Slight	Slight
Lb: Landes	Moderate: flooding	Moderate: flooding	Slight	Slight
Lo: Lobdell	Moderate: flooding	Moderate: flooding	Slight	Slight
LrB, LrC: Loudon	Severe: low strength	Severe: low strength	Slight	Slight
LvC: Loudonville	Moderate: depth to rock, low strength, slope	Moderate: slope, depth to rock, low strength	Slight	Slight
LvD: Loudonville	Moderate: depth to rock, low strength, slope	Severe: slope	Moderate: slope	Moderate: slope

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
MaB, MaC:				
Markland	Severe: low strength	Severe: low strength	Slight	Slight
MaD2:				
Markland	Severe: low strength	Severe: slope, low strength	Moderate: slope	Moderate: slope
Mg, Mh:				
Melvin	Severe: wetness, low strength, flooding	Severe: wetness, low strength, flooding	Severe: wetness, flooding	Severe: wetness, flooding
MnA, MnB:				
Mentor	Severe: low strength	Severe: low strength	Slight	Slight
MnC:				
Mentor	Severe: low strength	Severe: slope, low strength	Slight	Slight
MnD:				
Mentor	Severe: low strength, slope	Severe: slope	Moderate: slope	Moderate: slope
Ne:				
Newark	Severe: wetness, low strength	Severe: wetness, low strength	Severe: wetness	Severe: wetness
Nf:				
Newark	Severe: wetness, low strength, flooding	Severe: wetness, flooding, low strength	Severe: wetness	Severe: wetness
Nn, No:				
Nolin	Severe: low strength	Severe: low strength	Slight	Slight
Or:				
Orrville	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Pg, Ph:				
Pits.				
RcC:				
Richland	Moderate: low strength	Moderate: slope, low strength	Slight	Slight
RcD:				
Richland	Moderate: slope, low strength	Severe: slope	Moderate: slope	Moderate: slope

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
RgC:				
Rigley	Slight	Moderate: slope	Slight	Slight
RgD, RgE:				
Rigley	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
RhD:				
Rigley	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
Se:				
Sebring	Severe: wetness, low strength	Severe: wetness, low strength	Severe: wetness	Severe: wetness
Th:				
Tioga	Slight	Slight	Slight	Slight
Tk:				
Tioga	Moderate: flooding	Moderate: flooding	Slight	Slight
Tm:				
Tioga	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: flooding
To:				
Tioga.				
Urban land.				
TsB:				
Titusville	Slight	Slight	Slight	Slight
TsC:				
Titusville	Slight	Moderate: slope	Slight	Slight
Ug, Uh:				
Udorthents.				
Up:				
Udorthents.				
Pits.				
WaA, WaB:				
Watertown	Slight	Slight	Slight	Slight
WaC:				
Watertown	Slight	Moderate: slope	Slight	Slight
WaD:				
Watertown	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
WaF:				
Watertown	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 11.--Woodland Harvesting and Regeneration Activities--Continued

Soil name and map symbol	Limitations for-- Haul roads	Log landings	Skid trails and logging areas	Site preparation and planting
Wb:				
Wappinger	Slight	Slight	Slight	Slight
WeC:				
Wellston	Moderate: low strength	Moderate: low strength	Slight	Slight
WhC:				
Westmoreland	Moderate: low strength	Moderate: slope, low strength	Slight	Slight
WhD, WhE:				
Westmoreland	Moderate: low strength, slope	Severe: slope	Moderate: slope	Moderate: slope
WnA, WnB:				
Wheeling	Slight	Slight	Slight	Slight
Zp:				
Zipp	Severe: wetness, low strength, flooding	Severe: wetness, flooding, low strength	Severe: wetness	Severe: wetness

Table 12.--Windbreaks and Environmental Plantings

(The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the given height on that soil or the soil is not generally used for windbreaks or environmental plantings.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
AaB:					
Aaron	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
AaC2:					
Aaron	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
AfB:					
Alford	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
AfC2:					
Alford	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
BhB:					
Bethesda	Manyflower cotoneaster	Amur maple, Siberian peashrub, silky dogwood, gray dogwood, eastern redcedar, lilac, American cranberrybush	---	Norway spruce, jack pine, red pine	Eastern white pine
BhD:					
Bethesda	Manyflower cotoneaster	Amur maple, Siberian peashrub, silky dogwood, gray dogwood, eastern redcedar, lilac, American cranberrybush	---	Norway spruce, jack pine, red pine	Eastern white pine

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
BhF:					
Bethesda	Manyflower cotoneaster	Amur maple, Siberian peashrub, silky dogwood, gray dogwood, eastern redcedar, lilac, American cranberrybush	---	Norway spruce, jack pine, red pine	Eastern white pine
BrD:					
Brownsville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
BrE:					
Brownsville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
BrF:					
Brownsville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
BtF:					
Brownsville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
Rock outcrop.					
CdA:					
Caneadea	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CfA:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
CfB:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
CfC:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
CfD:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
CfE:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
CgA:					
Chili	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
Urban land.					

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CgB:					
Chili-----------	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
Urban land.					
ChA:					
Cidermill-------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
ChB:					
Cidermill-------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
CkC:					
Clarksburg------	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, Tatarian honeysuckle, arrowwood, American cranberrybush	Hackberry, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
CkD:					
Clarksburg------	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, Tatarian honeysuckle, arrowwood, American cranberrybush	Hackberry, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
CoB:					
Coshocton-------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CoC2: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
CoD: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
CoE: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
CpC: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
CpD: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
CrD: Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Rigley	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CrE:					
Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Rigley	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
CsD:					
Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Westmoreland	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
CsE:					
Coshocton	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Westmoreland	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
DeC: Dekalb.					
Ds: Dumps.					
EuA:					
Euclid	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
FaB, FaD, FaE: Fairpoint.					

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
FeB: Farmerstown	---	Washington hawthorn, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
FeC: Farmerstown	---	Washington hawthorn, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
FhA: Fitchville	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
FhB: Fitchville	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
GdB: Germano	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine, Virginia pine	---	---
GdC2: Germano	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine, Virginia pine	---	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
GhB:					
Gilpin----------	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
GhC:					
Gilpin----------	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
GhD:					
Gilpin----------	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
GnA:					
Glenford--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
GnB:					
Glenford--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
GnC:					
Glenford--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
GpA: Glenford	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
GuC: Guernsey	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
GuD: Guernsey	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
HaD: Hazleton	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
HaE: Hazleton	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
HaF: Hazleton	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, Tatarian honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
HeF: Hazleton	---	Washington hawthorn, Amur privet, Amur honeysuckle, Tatarian honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
HoB: Homewood	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
HoC: Homewood	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
Ht: Huntington	---	Amur maple, silky dogwood, autumn olive, Amur privet, Amur honeysuckle, lilac, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Honeylocust, Norway spruce, Austrian pine	Eastern white pine, eastern cottonwood, pin oak
JmA: Jimtown	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
KeB: Keene	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
KeC: Keene	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
La: Landes	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Lb: Landes	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Lo: Lobdell	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
LrB: Loudon	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
LrC: Loudon	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
LvC: Loudonville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
LvD: Loudonville	Siberian peashrub	Washington hawthorn, autumn olive, eastern redcedar, Amur honeysuckle, radiant crabapple, lilac	Jack pine, Austrian pine, red pine, eastern white pine	---	---
MaB: Markland	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, Tatarian honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
MaC: Markland	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, Tatarian honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
MaD2: Markland	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, Tatarian honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
Mg: Melvin	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Norway spruce, Austrian pine, blue spruce, northern whitecedar	Eastern white pine	Pin oak
Mh: Melvin.					
MnA: Mentor	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MnB: Mentor	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
MnC: Mentor	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
MnD: Mentor	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Ne: Newark	Redosier dogwood	Silky dogwood, Amur privet, Amur honeysuckle, American plum, common chokecherry, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Silver maple, Norway spruce, eastern white pine, northern red oak, golden willow	Eastern cottonwood, pin oak
Nf: Newark	Redosier dogwood	Silky dogwood, Amur privet, Amur honeysuckle, American plum, common chokecherry, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Silver maple, Norway spruce, eastern white pine, northern red oak, golden willow	Eastern cottonwood, pin oak
Nn: Nolin	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
No: Nolin	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Or: Orrville--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Pg: Pits, gravel.					
Ph: Pits, quarry.					
RcC: Richland--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
RcD: Richland--------	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
RgC: Rigley----------	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
RgD, Rigley----------	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
RgE: Rigley----------	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
RhD: Rigley----------	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Se: Sebring	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Norway spruce, Austrian pine, blue spruce, northern whitecedar	Eastern white pine	Pin oak
Th: Tioga	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Tk: Tioga	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Tm: Tioga	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
To: Tioga	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
Urban land.					
TsB: Titusville	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
TsC:					
Titusville	---	Washington hawthorn, eastern redcedar, Amur privet, Amur honeysuckle, arrowwood, American cranberrybush	Green ash, Osage-orange, Austrian pine	Eastern white pine, pin oak	---
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeletal.					
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
WaB:					
Watertown	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
WaC:					
Watertown	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
WaD:					
Watertown	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---
WaF:					
Watertown	---	Washington hawthorn, Amur privet, Amur honeysuckle, American cranberrybush	Eastern redcedar, Osage-orange, Austrian pine, northern whitecedar	Norway spruce, red pine, eastern white pine	---

Table 12.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Wb:					
Wappinger	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Austrian pine, blue spruce, northern whitecedar	Norway spruce	Eastern white pine, pin oak
WeC:					
Wellston	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
WhC:					
Westmoreland	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
WhD:					
Westmoreland	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
WhE:					
Westmoreland	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce, Austrian pine	Eastern white pine, pin oak
WnA:					
Wheeling	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce	Austrian pine, eastern white pine, pin oak
WnB:					
Wheeling	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, blue spruce, northern whitecedar	Norway spruce	Austrian pine, eastern white pine, pin oak
Zp:					
Zipp	---	Silky dogwood, Amur privet, Amur honeysuckle, American cranberrybush	White fir, Washington hawthorn, Norway spruce, Austrian pine, blue spruce, northern whitecedar	Eastern white pine	Pin oak

Table 13.--Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaB:					
Aaron	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: erodes easily	Moderate: wetness
AaC2:					
Aaron	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: wetness, slope
AfB:					
Alford	Slight	Slight	Moderate: slope	Slight	Slight
AfC2:					
Alford	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
BgB:					
Bethesda	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope, small stones, percs slowly	Slight	Moderate: droughty
BgD:					
Bethesda	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
BgE:					
Bethesda	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
BhB:					
Bethesda	Moderate: small stones, percs slowly	Moderate: small stones, percs slowly	Severe: small stones	Slight	Severe: droughty
BhD:					
Bethesda	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: droughty, slope
BhF:					
Bethesda	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: droughty, slope
BrD:					
Brownsville	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Moderate: slope	Severe: small stones, slope

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BrE:					
Brownsville-----	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: slope	Severe: small stones, slope
BrF:					
Brownsville-----	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: slope	Severe: small stones, slope
BtF:					
Brownsville-----	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: slope	Severe: small stones, slope
Rock outcrop.					
CdA:					
Caneadea--------	Severe: wetness, percs slowly	Severe: percs slowly	Severe: wetness, percs slowly	Moderate: wetness	Moderate: wetness
CfA:					
Chili-----------	Slight	Slight	Moderate: small stones	Slight	Moderate: droughty
CfB:					
Chili-----------	Slight	Slight	Moderate: slope, small stones	Slight	Moderate: droughty
CfC:					
Chili-----------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: droughty, slope
CfD:					
Chili-----------	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
CfE:					
Chili-----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CgA:					
Chili-----------	Slight	Slight	Moderate: small stones	Slight	Moderate: droughty
Urban land.					
CgB:					
Chili-----------	Slight	Slight	Moderate: slope, small stones	Slight	Moderate: droughty
Urban land.					
ChA:					
Cidermill-------	Slight	Slight	Slight	Slight	Slight
ChB:					
Cidermill-------	Slight	Slight	Moderate: slope	Slight	Slight

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CkC:					
Clarksburg	Moderate: slope, wetness	Moderate: slope, wetness	Severe: slope	Severe: erodes easily	Moderate: wetness, slope
CkD:					
Clarksburg	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
CoB:					
Coshocton	Moderate: wetness	Moderate: wetness	Moderate: slope, small stones, wetness	Severe: erodes easily	Moderate: wetness
CoC2:					
Coshocton	Moderate: slope, wetness	Moderate: slope, wetness	Severe: slope	Severe: erodes easily	Moderate: wetness, slope
CoD:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
CoE:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
CpC:					
Coshocton	Moderate: slope, large stones, wetness	Moderate: slope, wetness, large stones	Severe: large stones, slope	Moderate: wetness	Moderate: large stones, wetness, slope
CpD:					
Coshocton	Severe: slope	Severe: slope	Severe: large stones, slope	Moderate: wetness, slope	Severe: slope
CrD:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Rigley	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
CrE:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
Rigley	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CsD:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Westmoreland	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CsE:					
Coshocton	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
Westmoreland	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
DeC:					
Dekalb	Severe: small stones	Severe: small stones	Severe: slope, small stones	Slight	Severe: small stones
Ds:					
Dumps.					
EuA:					
Euclid	Severe: flooding, wetness	Moderate: wetness, percs slowly	Severe: wetness	Moderate: wetness	Moderate: wetness, flooding
FaB:					
Fairpoint	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope, small stones, percs slowly	Slight	Moderate: droughty
FaD:					
Fairpoint	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
FaE:					
Fairpoint	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
FeB:					
Farmerstown	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope, small stones, percs slowly	Severe: erodes easily	Moderate: droughty
FeC:					
Farmerstown	Moderate: slope, percs slowly	Moderate: slope, percs slowly	Severe: slope	Severe: erodes easily	Moderate: droughty, slope
FhA:					
Fitchville	Severe: wetness	Moderate: wetness, percs slowly	Severe: wetness	Moderate: wetness	Moderate: wetness
FhB:					
Fitchville	Severe: wetness	Moderate: wetness, percs slowly	Severe: wetness	Moderate: wetness	Moderate: wetness
GdB:					
Germano	Slight	Slight	Moderate: slope, small stones, depth to rock	Slight	Moderate: large stones, droughty

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
GdC2:					
Germano	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones, droughty, slope
GhB:					
Gilpin	Slight	Slight	Moderate: slope, small stones	Slight	Moderate: thin layer
GhC:					
Gilpin	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, thin layer
GhD:					
Gilpin	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
GnA:					
Glenford	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: wetness	Slight
GnB:					
Glenford	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: slope, wetness, percs slowly	Moderate: wetness	Slight
GnC:					
Glenford	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope
GpA:					
Glenford	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: wetness	Slight
GuC:					
Guernsey	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope, wetness
GuD:					
Guernsey	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
HaD:					
Hazleton	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
HaE:					
Hazleton	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
HaF: Hazleton	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
HeF: Hazleton	Severe: slope	Severe: slope	Severe: large stones, slope, small stones	Severe: slope	Severe: slope
HoB: Homewood	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope, percs slowly	Severe: erodes easily	Slight
HoC: Homewood	Moderate: slope, percs slowly	Moderate: slope, percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope
Ht: Huntington	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding
JmA: Jimtown	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
KeB: Keene	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: slope, wetness, percs slowly	Slight	Moderate: wetness
KeC: Keene	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: wetness, slope
La: Landes	Severe: flooding	Slight	Slight	Slight	Moderate: small stones
Lb: Landes	Severe: flooding	Slight	Slight	Slight	Moderate: flooding
Lo: Lobdell	Severe: flooding	Moderate: wetness	Moderate: wetness, flooding	Slight	Moderate: flooding
LrB: Loudon	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: slope, wetness, percs slowly	Moderate: wetness	Slight

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
LrC: Loudon----------	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope
LvC: Loudonville-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, thin layer, area reclaim
LvD: Loudonville-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
MaB: Markland--------	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope, percs slowly	Severe: erodes easily	Slight
MaC: Markland--------	Moderate: slope, percs slowly	Moderate: slope, percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope
MaD2: Markland--------	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Mg: Melvin----------	Severe: flooding, wetness	Severe: wetness	Severe: wetness, flooding	Severe: wetness	Severe: wetness, flooding
Mh: Melvin----------	Severe: flooding, ponding	Severe: ponding	Severe: ponding, flooding	Severe: ponding	Severe: ponding, flooding
MnA: Mentor----------	Slight	Slight	Slight	Slight	Slight
MnB: Mentor----------	Slight	Slight	Moderate: slope	Slight	Slight
MnC: Mentor----------	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
MnD: Mentor----------	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Ne: Newark----------	Severe: flooding, wetness	Severe: wetness	Severe: wetness	Severe: wetness, erodes easily	Severe: wetness
Nf: Newark----------	Severe: flooding, wetness	Severe: wetness	Severe: wetness, flooding	Severe: wetness, erodes easily	Severe: wetness, flooding

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Nn:					
Nolin	Severe: flooding	Slight	Slight	Severe: erodes easily	Slight
No:					
Nolin	Severe: flooding	Slight	Moderate	Severe: erodes easily	Moderate: flooding
Or:					
Orrville	Severe: flooding, wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness, flooding
Pg:					
Pits, gravel.					
Ph:					
Pits, quarry.					
RcC:					
Richland	Moderate: small stones, slope	Moderate: slope, small stones	Severe: slope, small stones	Severe: erodes easily	Moderate: small stones, large stones, slope
RcD:					
Richland	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: erodes easily	Severe: slope
RgC:					
Rigley	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones, slope
RgD:					
Rigley	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
RgE:					
Rigley	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
RhD:					
Rigley	Severe: slope	Severe: slope	Severe: large stones, slope	Moderate: slope	Severe: slope
Se:					
Sebring	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding
Th:					
Tioga	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
Tk:					
Tioga	Severe: flooding	Slight	Slight	Slight	Moderate: flooding
Tm:					
Tioga	Severe: flooding	Moderate: flooding	Slight	Moderate: flooding	Severe: flooding

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
To:					
Tioga	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
Urban land.					
TsB:					
Titusville	Moderate: wetness, percs slowly	Moderate: wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: erodes easily	Moderate: wetness
TsC:					
Titusville	Moderate: slope, wetness, percs slowly	Moderate: slope, wetness, percs slowly	Severe: slope	Severe: erodes easily	Moderate: wetness, slope
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeletal.					
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown	Slight	Slight	Moderate: small stones	Slight	Moderate: droughty
WaB:					
Watertown	Slight	Slight	Moderate: slope, small stones	Slight	Moderate: droughty
WaC:					
Watertown	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: droughty, slope
WaD:					
Watertown	Severe: slope	Severe: slope	Severe: slope	Slight	Severe: slope, droughty
WaF:					
Watertown	Severe: slope	Severe: slope	Severe: slope	Slight	Severe: slope, droughty
Wb:					
Wappinger	Severe: flooding	Slight	Slight	Severe: erodes easily	Moderate: flooding, droughty
WeC:					
Wellston	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope

Table 13.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WhC:					
Westmoreland----	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
WhD:					
Westmoreland----	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
WhE:					
Westmoreland----	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
WnA:					
Wheeling--------	Slight	Slight	Slight	Slight	Slight
WnB:					
Wheeling--------	Slight	Slight	Moderate: slope	Slight	Slight
Zp:					
Zipp------------	Severe: flooding, ponding, percs slowly	Severe: ponding, percs slowly	Severe: ponding, flooding	Severe: ponding	Severe: ponding, flooding

Table 14.--Wildlife Habitat

(See text for definitions of “good,” “fair,” “poor,” and “very poor.” Absence of an entry indicates the soil was not rated.)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
AaB: Aaron	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AaC2: Aaron	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
AfB: Alford	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AfC2: Alford	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BgB: Bethesda	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
BgD: Bethesda	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BgE: Bethesda	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BhB: Bethesda	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Very poor
BhD: Bethesda	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
BhF: Bethesda	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
BrD: Brownsville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor
BrE: Brownsville	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
BrF: Brownsville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
BtF: Brownsville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Rock outcrop.										

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
CdA:										
Caneadea	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
CfA:										
Chili	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CfB:										
Chili	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CfC:										
Chili	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CfD:										
Chili	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CfE:										
Chili	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CgA:										
Chili	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land.										
CgB:										
Chili	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land.										
ChA:										
Cidermill	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ChB:										
Cidermill	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CkC:										
Clarksburg	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CkD:										
Clarksburg	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CoB:										
Coshocton	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CoC2:										
Coshocton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
CoD:										
Coshocton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CoE:										
Coshocton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CpC:										
Coshocton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CpD:										
Coshocton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CrD:										
Coshocton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rigley	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CrE:										
Coshocton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Rigley	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CsD:										
Coshocton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Westmoreland	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CsE:										
Coshocton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Westmoreland	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeC:										
Dekalb	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Ds:										
Dumps.										
EuA:										
Euclid	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
FaB:										
Fairpoint	Fair	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
FaD:										
Fairpoint	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
FaE: Fairpoint	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Poor	Very poor
FeB: Farmerstown	Fair	Good	Good	Fair	Fair	Poor	Poor	Good	Fair	Poor
FeC: Farmerstown	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
FhA: Fitchville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
FhB: Fitchville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GdB: Germano	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GdC2: Germano	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GhB: Gilpin	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
GhC: Gilpin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
GhD: Gilpin	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GnA: Glenford	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GnB: Glenford	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
GnC: Glenford	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GpA: Glenford	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GuC: Guernsey	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GuD: Guernsey	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
HaD: Hazleton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor
HaE: Hazleton	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor
HaF: Hazleton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
HeF: Hazleton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
HoB: Homewood	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HoC: Homewood	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ht: Huntington	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
JmA: Jimtown	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
KeB: Keene	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KeC: Keene	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
La: Landes	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Lb: Landes	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Lo: Lobdell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LrB: Loudon	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
LrC: Loudon	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LvC: Loudonville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
LvD: Loudonville-----	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MaB: Markland--------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MaC: Markland--------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MaD2: Markland--------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Mg: Melvin----------	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Mh: Melvin----------	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Good	Very poor	Very poor	Good
MnA: Mentor----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MnB: Mentor----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MnC: Mentor----------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MnD: Mentor----------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Ne: Newark----------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
Nf: Newark----------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
Nn: Nolin-----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
No: Nolin-----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Or: Orrville--------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
Pg: Pits, gravel.										

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
Ph:										
Pits, quarry.										
RcC:										
Richland	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
RcD:										
Richland	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RgC:										
Rigley	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
RgD:										
Rigley	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RgE:										
Rigley	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RhD:										
Rigley	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Se:										
Sebring	Fair	Fair	Good	Good	Good	Good	Good	Fair	Good	Good
Th:										
Tioga	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Tk:										
Tioga	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Tm:										
Tioga	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
To:										
Tioga	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Urban land.										
TsB:										
Titusville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TsC:										
Titusville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ug:										
Udorthents, loamy.										

Table 14.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wilflife	Wetland wildlife
Uh:										
Udorthents, loamy-skeletal.										
Up:										
Udorthents.										
Pits.										
WaA:										
Watertown	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
WaB:										
Watertown	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
WaC:										
Watertown	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
WaD:										
Watertown	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
WaF:										
Watertown	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Wb:										
Wappinger	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WeC:										
Wellston	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WhC:										
Westmoreland	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
WhD:										
Westmoreland	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
WhE:										
Westmoreland	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
WnA:										
Wheeling	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WnB:										
Wheeling	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Zp:										
Zipp	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good

Table 15.--Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaB:						
Aaron	Severe: wetness	Severe: shrink-swell	Severe: wetness, shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Moderate: wetness
AaC2:						
Aaron	Severe: wetness	Severe: shrink-swell	Severe: wetness, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: wetness, slope
AfB:						
Alford	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength, frost action	Slight
AfC2:						
Alford	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength, frost action	Moderate: slope
BgB:						
Bethesda	Moderate: dense layer	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Moderate: droughty
BgD:						
Bethesda	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope
BgE:						
Bethesda	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope
BhB:						
Bethesda	Moderate: dense layer, large stones	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: droughty
BhD:						
Bethesda	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: droughty, slope
BhF:						
Bethesda	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: droughty, slope
BrD:						
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
BrE:						
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BrF:						
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
BtF:						
Brownsville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
Rock outcrop.						
CdA:						
Caneadea	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength, frost action	Moderate: wetness
CfA:						
Chili	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
CfB:						
Chili	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: droughty
CfC:						
Chili	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope, frost action	Moderate: droughty, slope
CfD:						
Chili	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CfE:						
Chili	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CgA:						
Chili	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
Urban land.						
CgB:						
Chili	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: droughty
Urban land.						
ChA:						
Cidermill	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: low strength, frost action	Slight
ChB:						
Cidermill	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: low strength, frost action	Slight

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CkC:						
Clarksburg-------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: wetness, slope
CkD:						
Clarksburg-------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: slope	Severe: slope
CoB:						
Coshocton--------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: low strength, frost action	Moderate: wetness
CoC2:						
Coshocton--------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: low strength, frost action	Moderate: wetness, slope
CoD:						
Coshocton--------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
CoE:						
Coshocton--------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
CpC:						
Coshocton--------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: low strength, frost action	Moderate: large stones, wetness, slope
CpD:						
Coshocton--------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
CrD:						
Coshocton--------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
Rigley-----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CrE:						
Coshocton--------	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CrE:						
Rigley	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CsD:						
Coshocton	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
Westmoreland	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CsE:						
Coshocton	Severe: wetness, slope	Severe: slope	Severe: wetness, slope	Severe: slope	Severe: low strength, slope, frost action	Severe: slope
Westmoreland	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DeC:						
Dekalb	Severe: depth to rock, cutbanks cave	Moderate: slope, depth to rock, large stones	Severe: depth to rock	Severe: slope	Moderate: depth to rock, slope, large stones	Severe: small stones
Ds:						
Dumps.						
EuA:						
Euclid	Severe: wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: low strength, flooding, frost action	Moderate: wetness, flooding
FaB:						
Fairpoint	Slight	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Moderate: droughty
FaD:						
Fairpoint	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope
FaE:						
Fairpoint	Severe: slope	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope
FeB:						
Farmerstown	Moderate: dense layer	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Moderate: droughty
FeC:						
Farmerstown	Moderate: dense layer, slope	Severe: unstable fill	Severe: unstable fill	Severe: slope, unstable fill	Severe: unstable fill	Moderate: droughty, slope

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
FhA:						
Fitchville------	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength, frost action	Moderate: wetness
FhB:						
Fitchville------	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength, frost action	Moderate: wetness
GdB:						
Germano---------	Moderate depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Moderate: frost action	Moderate: large stones, droughty
GdC2:						
Germano---------	Moderate slope depth to rock	Moderate: slope	Moderate: depth to rock, slope	Severe: slope	Moderate: slope, frost action	Moderate: large stones, droughty, slope
GhB:						
Gilpin----------	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Moderate: frost action	Moderate: thin layer
GhC:						
Gilpin----------	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: slope, frost action	Moderate: slope, thin layer
GhD:						
Gilpin----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GnA:						
Glenford--------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell	Severe: low strength, frost action	Slight
GnB:						
Glenford--------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: low strength, frost action	Slight
GnC:						
Glenford--------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: low strength, frost action	Moderate: slope
GpA:						
Glenford--------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell	Severe: low strength, frost action	Slight
GuC:						
Guernsey--------	Severe: wetness	Severe: shrink-swell	Severe: wetness, shrink-swell	Severe: slope, shrink-swell	Severe: shrink-swell, low strength	Moderate: slope, wetness

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
GuD:						
Guernsey--------	Severe: wetness, slope, slippage	Severe: slope, slippage, shrink-swell	Severe: wetness, slope, shrink-swell	Severe: slope, slippage, shrink-swell	Severe: shrink-swell, low strength, slope	Severe: slope
HaD:						
Hazleton--------	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
HaE:						
Hazleton--------	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
HaF:						
Hazleton--------	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
HeF:						
Hazleton--------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
HoB:						
Homewood--------	Moderate: dense layer, wetness	Moderate: shrink-swell	Moderate: wetness, shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
HoC:						
Homewood--------	Moderate: dense layer, wetness, slope	Moderate: shrink-swell, slope	Moderate: wetness, slope, shrink-swell	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: slope
Ht:						
Huntington------	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding, frost action	Moderate: flooding
JmA:						
Jimtown---------	Severe: cutbanks cave, wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Moderate: wetness
KeB:						
Keene-----------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: low strength, frost action	Moderate: wetness
KeC:						
Keene-----------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: low strength, frost action	Moderate: wetness, slope
La:						
Landes----------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Moderate: small stones

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Lb:						
Landes	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
Lo:						
Lobdell	Severe: wetness	Severe: flooding	Severe: flooding, wetness	Severe: flooding	Severe: flooding, frost action	Moderate: flooding
LrB:						
Loudon	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: low strength, frost action	Slight
LrC:						
Loudon	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: low strength, frost action	Moderate: slope
LvC:						
Loudonville	Severe: depth to rock	Moderate: shrink-swell, slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: depth to rock, low strength, slope	Moderate: slope, thin layer, area reclaim
LvD:						
Loudonville	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope
MaB:						
Markland	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
MaC:						
Markland	Moderate: too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: slope
MaD2:						
Markland	Severe: slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope
Mg:						
Melvin	Severe: wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: low strength, wetness, flooding	Severe: wetness, flooding
Mh:						
Melvin	Severe: ponding	Severe: flooding, ponding	Severe: flooding, ponding	Severe: flooding, ponding	Severe: flooding, ponding, low strength	Severe: ponding, flooding

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MnA:						
Mentor	Moderate: wetness	Slight	Moderate: wetness	Slight	Severe: low strength, frost action	Slight
MnB:						
Mentor	Moderate: wetness	Slight	Moderate: wetness	Moderate: slope	Severe: low strength, frost action	Slight
MnC:						
Mentor	Moderate: slope, wetness	Moderate: slope	Moderate: slope, wetness	Severe: slope	Severe: low strength, frost action	Moderate: slope
MnD:						
Mentor	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope, low strength, frost action	Severe: slope
Ne:						
Newark	Severe: wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: low strength, wetness, flooding	Severe: wetness
Nf:						
Newark	Severe: wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: low strength, wetness, flooding	Severe: wetness, flooding
Nn:						
Nolin	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: low strength	Slight
No:						
Nolin	Moderate: wetness, flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: low strength, flooding	Moderate: flooding
Or:						
Orrville	Severe: cutbanks cave, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, frost action	Moderate: wetness, flooding
Pg:						
Pits, gravel.						
Ph:						
Pits, quarry.						
RcC:						
Richland	Moderate: wetness, slope	Moderate: shrink-swell, slope	Moderate: wetness, slope, shrink-swell	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: small stones, large stones, slope
RcD:						
Richland	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
RgC:						
Rigley----------	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: large stones, slope
RgD:						
Rigley----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
RgE:						
Rigley----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
RhD:						
Rigley----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope, frost action	Severe: slope
Se:						
Sebring---------	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: low strength, ponding, frost action	Severe: ponding
Th:						
Tioga-----------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Moderate: droughty
Tk:						
Tioga-----------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
Tm:						
Tioga-----------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding
To:						
Tioga-----------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Moderate: droughty
Urban land.						
TsB:						
Titusville------	Severe: wetness	Moderate: wetness, shrink-swell	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: frost action	Moderate: wetness
TsC:						
Titusville------	Severe: wetness	Moderate: wetness, shrink-swell, slope	Severe: wetness	Severe: slope	Severe: frost action	Moderate: wetness, slope
Ug:						
Udorthents, loamy.						
Uh:						
Udorthents, loamy-skeletal.						

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Up:						
Udorthents.						
Pits.						
WaA:						
Watertown-------	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
WaB:						
Watertown-------	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: droughty
WaC:						
Watertown-------	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope, frost action	Moderate: droughty, slope
WaD:						
Watertown-------	Severe: cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: frost action	Severe: slope, droughty
WaF:						
Watertown-------	Severe: cutbanks cave	Severe: slope		Severe: slope	Severe: slope, frost action	Severe: slope, droughty
Wb:						
Wappinger-------	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Moderate: flooding, droughty
WeC:						
Wellston--------	Moderate: depth to rock, slope	Moderate: slope	Moderate: depth to rock, slope	Severe: slope	Severe: frost action	Moderate: slope
WhC:						
Westmoreland----	Moderate: depth to rock, slope	Moderate: slope	Moderate: depth to rock, slope	Severe: slope	Moderate: low strength, slope, frost action	Moderate: slope
WhD:						
Westmoreland----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
WhE:						
Westmoreland----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
WnA:						
Wheeling--------	Slight	Slight	Slight	Slight	Moderate: frost action, low strength	Slight
WnB:						
Wheeling--------	Slight	Slight	Slight	Moderate: slope	Moderate: frost action, low strength	Slight

Table 15.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Zp:						
Zipp------------	Severe: ponding	Severe: flooding, ponding, shrink-swell	Severe: flooding, ponding, shrink-swell	Severe: flooding, ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding, flooding

Table 16.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaB:					
Aaron-----------	Severe: wetness, percs slowly	Moderate: depth to rock, slope	Severe: depth to rock, wetness	Moderate: depth to rock, wetness	Poor: too clayey, hard to pack
AaC2:					
Aaron-----------	Severe: wetness, percs slowly	Severe: slope	Severe: depth to rock, wetness	Moderate: depth to rock, wetness, slope	Poor: too clayey, hard to pack
AfB:					
Alford----------	Slight	Moderate: seepage, slope	Moderate: too clayey	Slight	Fair: too clayey
AfC2:					
Alford----------	Moderate: slope	Severe: slope	Moderate: slope, too clayey	Moderate: slope	Fair: too clayey, slope
BgB:					
Bethesda--------	Severe: percs slowly, unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Poor: small stones
BgD:					
Bethesda--------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope
BgE:					
Bethesda--------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope
BhB:					
Bethesda--------	Severe: percs slowly, unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Poor: small stones
BhD:					
Bethesda--------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope
BhF:					
Bethesda--------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BrD:					
Brownsville-----	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: small stones, slope
BrE:					
Brownsville-----	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: small stones, slope
BrF:					
Brownsville-----	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: small stones, slope
BtF:					
Brownsville-----	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: small stones, slope
Rock outcrop.					
CdA:					
Caneadea--------	Severe: wetness, percs slowly	Slight	Severe: wetness, too clayey	Severe: wetness	Poor: too clayey, hard to pack
CfA:					
Chili-----------	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, small stones
CfB:					
Chili-----------	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, small stones
CfC:					
Chili-----------	Moderate: slope	Severe: seepage, slope	Severe: seepage	Severe: seepage	Fair: too clayey, small stones, slope
CfD:					
Chili-----------	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
CfE:					
Chili-----------	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
CgA:					
Chili-----------	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, small stones
Urban land.					

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CgB:					
Chili	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, small stones
Urban land.					
ChA:					
Cidermill	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, thin layer
ChB:					
Cidermill	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too clayey, thin layer
CkC:					
Clarksburg	Severe: wetness, percs slowly	Severe: slope, wetness	Severe: depth to rock, wetness	Moderate: wetness, slope	Poor: small stones
CkD:					
Clarksburg	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: depth to rock, wetness, slope	Severe: slope	Poor: small stones, slope
CoB:					
Coshocton	Severe: wetness, percs slowly	Severe: wetness	Severe: seepage, wetness	Moderate: wetness	Poor: too clayey, hard to pack
CoC2:					
Coshocton	Severe: wetness, percs slowly	Severe: slope, wetness	Severe: seepage, wetness	Moderate: wetness, slope	Poor: too clayey, hard to pack
CoD:					
Coshocton	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
CoE:					
Coshocton	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
CpC:					
Coshocton	Severe: wetness, percs slowly	Severe: slope, wetness	Severe: seepage, wetness	Moderate: wetness, slope	Poor: too clayey, hard to pack
CpD:					
Coshocton	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CrD:					
Coshocton-------	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
Rigley----------	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
CrE:					
Coshocton-------	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
Rigley----------	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
CsD:					
Coshocton-------	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
Westmoreland----	Severe: slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Poor: small stones, slope
CsE:					
Coshocton-------	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, wetness, slope	Severe: slope	Poor: too clayey, hard to pack, slope
Westmoreland----	Severe: slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Poor: small stones, slope
DeC:					
Dekalb----------	Severe: depth to rock, poor filter	Severe: seepage, depth to rock, slope	Severe: depth to rock, seepage	Severe: depth to rock, seepage	Poor: depth to rock, small stones
Ds:					
Dumps.					
EuA:					
Euclid----------	Severe: flooding, wetness, percs slowly	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Poor: wetness
FaB:					
Fairpoint-------	Severe: percs slowly, unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Poor: small stones

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
FaD:					
Fairpoint-------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope
FaE:					
Fairpoint-------	Severe: percs slowly, slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope
FeB:					
Farmerstown-----	Severe: percs slowly, unstable fill	Severe: unstable fill	Severe: unstable fill	Severe: unstable fill	Poor: small stones
FeC:					
Farmerstown-----	Severe: percs slowly, unstable fill	Severe: slope, unstable fill	Severe: unstable fill	Severe: unstable fill	Poor: small stones
FhA:					
Fitchville------	Severe: wetness, percs slowly	Severe: wetness	Severe: wetness	Severe: wetness	Poor: wetness
FhB:					
Fitchville------	Severe: wetness, percs slowly	Severe: wetness	Severe: wetness	Severe: wetness	Poor: wetness
GdB:					
Germano---------	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock, seepage	Severe: depth to rock, seepage	Poor: depth to rock, small stones
GdC2:					
Germano---------	Severe: depth to rock	Severe: seepage, depth to rock, slope	Severe: depth to rock, seepage	Severe: depth to rock, seepage	Poor: depth to rock, small stones
GhB:					
Gilpin----------	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: area reclaim, thin layer
GhC:					
Gilpin----------	Severe: depth to rock	Severe: depth to rock, slope	Severe: depth to rock	Severe: depth to rock	Poor: area reclaim, thin layer
GhD:					
Gilpin----------	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Poor: slope, area reclaim, thin layer
GnA:					
Glenford--------	Severe: wetness, percs slowly	Severe: wetness	Moderate: wetness, too clayey	Moderate: wetness	Fair: too clayey, wetness

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GnB:					
Glenford--------	Severe: wetness, percs slowly	Severe: wetness	Moderate: wetness, too clayey	Moderate: wetness	Fair: too clayey, wetness
GnC:					
Glenford--------	Severe: wetness, percs slowly	Severe: slope, wetness	Moderate: wetness, slope, too clayey	Moderate: wetness, slope	Fair: too clayey, slope, wetness
GpA:					
Glenford--------	Severe: wetness, percs slowly	Severe: wetness	Moderate: wetness, too clayey	Moderate: wetness	Fair: too clayey, wetness
GuC:					
Guernsey--------	Severe: wetness, percs slowly	Severe: slope, wetness	Severe: seepage, too clayey	Moderate: wetness, slope	Poor: too clayey, hard to pack
GuD:					
Guernsey--------	Severe: wetness, percs slowly, slope	Severe: slope, wetness	Severe: seepage, slope, too clayey	Severe: slope	Poor: too clayey, hard to pack, slope
HaD:					
Hazleton--------	Severe: poor filter, slope	Severe: seepage, slope, large stones	Severe: depth to rock, seepage, slope	Severe: seepage, slope	Poor: small stones, slope
HaE:					
Hazleton--------	Severe: poor filter, slope	Severe: seepage, slope, large stones	Severe: depth to rock, seepage, slope	Severe: seepage, slope	Poor: small stones, slope
HaF:					
Hazleton--------	Severe: poor filter, slope	Severe: seepage, slope, large stones	Severe: depth to rock, seepage, slope	Severe: seepage, slope	Poor: small stones, slope
HeF:					
Hazleton--------	Severe: slope, poor filter	Severe: slope, seepage	Severe: slope, seepage	Severe: seepage, slope	Poor: slope, small stones
HoB:					
Homewood--------	Severe: wetness, percs slowly	Moderate: seepage, slope	Moderate: wetness, too clayey	Moderate: wetness	Fair: too clayey, small stones
HoC:					
Homewood--------	Severe: wetness, percs slowly	Severe: slope	Moderate: wetness, slope, too clayey	Moderate: wetness, slope	Fair: too clayey, small stones, slope

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ht:					
Huntington	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Good
JmA:					
Jimtown	Severe: wetness	Severe: seepage, wetness	Severe: seepage, wetness, too sandy	Severe: seepage, wetness	Poor: too sandy, small stones, wetness
KeB:					
Keene	Severe: wetness, percs slowly	Severe: wetness	Severe: seepage, wetness	Moderate: wetness	Poor: too clayey, hard to pack
KeC:					
Keene	Severe: wetness, percs slowly	Severe: slope, wetness	Severe: seepage, wetness	Moderate: wetness, slope	Poor: too clayey, hard to pack
La:					
Landes	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy
Lb:					
Landes	Severe: flooding, poor filter	Severe: seepage, flooding	Severe: flooding, seepage, too sandy	Severe: flooding, seepage	Poor: seepage, too sandy
Lo:					
Lobdell	Severe: flooding, wetness	Severe: seepage, flooding, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Fair: wetness
LrB:					
Loudon	Severe: wetness, percs slowly	Moderate: slope	Severe: seepage, too clayey	Moderate: wetness	Poor: too clayey, hard to pack
LrC:					
Loudon	Severe: wetness, percs slowly	Severe: slope	Severe: seepage, too clayey	Moderate: wetness, slope	Poor: too clayey, hard to pack
LvC:					
Loudonville	Severe: thin layer, seepage	Severe: depth to rock, seepage, slope	Severe: depth to rock, seepage	Moderate: seepage, slope	Poor: area reclaim, thin layer
LvD:					
Loudonville	Severe: thin layer, seepage, slope	Severe: depth to rock, seepage, slope	Severe: depth to rock, seepage, slope	Severe: slope	Poor: area reclaim, slope, thin layer
MaB:					
Markland	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MaC:					
Markland	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey, hard to pack
MaD2:					
Markland	Severe: percs slowly, slope	Severe: slope	Severe: slope, too clayey	Severe: slope	Poor: too clayey, hard to pack, slope
Mg:					
Melvin	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Poor: wetness
Mh:					
Melvin	Severe: flooding, ponding	Severe: flooding, ponding	Severe: flooding, ponding	Severe: flooding, ponding	Poor: ponding
MnA:					
Mentor	Moderate: wetness	Moderate: seepage, wetness	Severe: wetness	Moderate: wetness	Good
MnB:					
Mentor	Moderate: wetness	Moderate: slope, seepage, wetness	Severe: wetness	Moderate: wetness	Good
MnC:					
Mentor	Moderate: slope, wetness	Severe: slope	Severe: wetness	Moderate: slope, wetness	Fair: slope
MnD:					
Mentor	Severe: slope	Severe: slope	Severe: wetness, slope	Severe: slope	Poor: slope
Ne:					
Newark	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Poor: wetness
Nf:					
Newark	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Poor: wetness
Nn:					
Nolin	Severe: wetness	Severe: seepage	Severe: seepage, wetness	Severe: wetness	Fair: too clayey, wetness
No:					
Nolin	Severe: flooding, wetness	Severe: seepage, flooding	Severe: flooding, seepage, wetness	Severe: flooding, wetness	Fair: too clayey, wetness

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Or: Orrville	Severe: flooding, wetness	Severe: seepage, flooding, wetness	Severe: flooding, seepage, wetness	Severe: flooding, wetness	Poor: wetness
Pg: Pits, gravel.					
Ph: Pits, quarry.					
RcC: Richland	Severe: wetness	Severe: slope, wetness	Severe: wetness	Severe: wetness	Fair: too clayey, small stones, slope
RcD: Richland	Severe: wetness, slope	Severe: slope, wetness	Severe: wetness, slope	Severe: wetness, slope	Poor: slope
RgC: Rigley	Moderate: slope	Severe: seepage, slope	Severe: seepage	Severe: seepage	Fair: small stones, slope
RgD: Rigley	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
RgE: Rigley	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope
RhD: Rigley	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Severe: slope
Se: Sebring	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding	Severe: ponding	Poor: ponding
Th: Tioga	Severe: wetness, poor filter	Severe: flooding, seepage, wetness	Severe: seepage, wetness	Severe: seepage, wetness	Poor: thin layer
Tk: Tioga	Severe: flooding, wetness, poor filter	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Poor: thin layer

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Tm:					
Tioga	Severe: flooding, wetness, poor filter	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Poor: thin layer
To:					
Tioga	Severe: wetness, poor filter	Severe: flooding, seepage, wetness	Severe: seepage, wetness	Severe: seepage, wetness	Poor: thin layer
Urban land.					
TsB:					
Titusville	Severe: wetness, percs slowly	Moderate: slope	Severe: wetness	Moderate: wetness	Fair: too clayey, small stones
TsC:					
Titusville	Severe: wetness, percs slowly	Severe: slope	Severe: wetness	Moderate: wetness, slope	Fair: too clayey, small stones, slope
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeletal.					
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
WaB:					
Watertown	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
WaC:					
Watertown	Severe: poor filter	Severe: seepage, slope	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
WaD:					
Watertown	Severe: poor filter	Severe: seepage, slope	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones

Table 16.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WaF:					
Watertown	Severe: poor filter	Severe: seepage, slope	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
Wb:					
Wappinger	Severe: flooding, wetness, poor filter	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Poor: thin layer
WeC:					
Wellston	Moderate: thin layer, seepage, slope	Severe: slope	Severe: depth to rock, seepage	Moderate: slope	Fair: area reclaim, too clayey, slope
WhC:					
Westmoreland	Moderate: depth to rock, percs slowly, slope	Severe: slope	Severe: depth to rock	Moderate: depth to rock, slope	Poor: small stones
WhD:					
Westmoreland	Severe: slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Poor: small stones, slope
WhE:					
Westmoreland	Severe: slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Poor: small stones, slope
WnA:					
Wheeling	Severe: poor filter	Severe: seepage	Severe: seepage	Slight	Fair: thin layer
WnB:					
Wheeling	Severe: poor filter	Severe: seepage	Severe: seepage	Slight	Fair: thin layer
Zp:					
Zipp	Severe: flooding, ponding, percs slowly	Severe: flooding, ponding	Severe: flooding, ponding, too clayey	Severe: flooding, ponding	Poor: too clayey, hard to pack, ponding

Table 17.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AaB:				
Aaron	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
AaC2:				
Aaron	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
AfB:				
Alford	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
AfC2:				
Alford	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope
BgB:				
Bethesda	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
BgD:				
Bethesda	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, slope
BgE:				
Bethesda	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, slope
BhB:				
Bethesda	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
BhD:				
Bethesda	Fair: large stones, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, slope
BhF:				
Bethesda	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, slope
BrD:				
Brownsville	Fair: area reclaim, thin layer, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
BrE:				
Brownsville-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
BrF:				
Brownsville-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
BtF:				
Brownsville-----	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Rock outcrop.				
CdA:				
Caneadea--------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CfA:				
Chili-----------	Good	Probable	Probable	Poor: small stones, area reclaim
CfB:				
Chili-----------	Good	Probable	Probable	Poor: small stones, area reclaim
CfC:				
Chili-----------	Good	Probable	Probable	Poor: small stones, area reclaim
CfD:				
Chili-----------	Fair: slope	Probable	Probable	Poor: small stones, area reclaim, slope
CfE:				
Chili-----------	Poor: slope	Probable	Probable	Poor: small stones, area reclaim, slope
CgA:				
Chili-----------	Good	Probable	Probable	Poor: small stones, area reclaim
Urban land.				
CgB:				
Chili-----------	Good	Probable	Probable	Poor: small stones, area reclaim
Urban land.				

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
ChA:				
Cidermill-------	Good	Probable	Probable	Poor: area reclaim
ChB:				
Cidermill-------	Good	Probable	Probable	Poor: area reclaim
CkC:				
Clarksburg------	Fair: shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
CkD:				
Clarksburg------	Fair: shrink-swell, wetness, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
CoB:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
CoC2:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
CoD:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
CoE:				
Coshocton-------	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
CpC:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
CpD:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
CrD:				
Coshocton-------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Rigley----------	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CrE:				
Coshocton	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Rigley	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
CsD:				
Coshocton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Westmoreland	Fair: depth to rock, low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
CsE:				
Coshocton	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Westmoreland	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
DeC:				
Dekalb	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Ds:				
Dumps.				
EuA:				
Euclid	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Good
FaB:				
Fairpoint	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
FaD:				
Fairpoint	Fair: shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
FaE:				
Fairpoint	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
FeB:				
Farmerstown	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
FeC:				
Farmerstown-----	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
FhA:				
Fitchville------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
FhB:				
Fitchville------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
GdB:				
Germano---------	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
GdC2:				
Germano---------	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
GhB:				
Gilpin----------	Poor: thin layer	Improbable: excess fines	Improbable: excess fines	Poor: small stones
GhC:				
Gilpin----------	Poor: thin layer	Improbable: excess fines	Improbable: excess fines	Poor: small stones
GhD:				
Gilpin----------	Poor: thin layer	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
GnA:				
Glenford--------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
GnB:				
Glenford--------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
GnC:				
Glenford--------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Fair: slope
GpA:				
Glenford--------	Fair: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Good
GuC:				
Guernsey--------	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
GuD: Guernsey	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope, too clayey
HaD: Hazleton	Fair: depth to rock, thin layer, slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
HaE: Hazleton	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
HaF: Hazleton	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
HeF: Hazleton	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, large stones, small stones
HoB: Homewood	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey
HoC: Homewood	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey, slope
Ht: Huntington	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
JmA: Jimtown	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
KeB: Keene	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, area reclaim
KeC: Keene	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, area reclaim

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
La:				
Landes----------	Good	Probable	Improbable: too sandy	Fair: too sandy, small stones, thin layer
Lb:				
Landes----------	Good	Probable	Improbable: too sandy	Fair: too sandy, small stones, thin layer
Lo:				
Lobdell---------	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones
LrB:				
Loudon----------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
LrC:				
Loudon----------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
LvC:				
Loudonville-----	Poor: area reclaim	Improbable: excess fines	Improbable: excess fines	Poor: small stones
LvD:				
Loudonville-----	Poor: area reclaim	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
MaB:				
Markland--------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
MaC:				
Markland--------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
MaD2:				
Markland--------	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Mg:				
Melvin----------	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Mh:				
Melvin----------	Poor: wetness, low strength	Improbable: excess fines	Improbable: excess fines	Poor: wetness
MnA:				
Mentor----------	Good	Improbable: excess fines	Improbable: excess fines	Good
MnB:				
Mentor----------	Good	Improbable: excess fines	Improbable: excess fines	Good

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
MnC: Mentor	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
MnD: Mentor	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Ne: Newark	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Nf: Newark	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Nn: Nolin	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, area reclaim
No: Nolin	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, area reclaim
Or: Orrville	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones, area reclaim
Pg: Pits, gravel.				
Ph: Pits, quarry.				
RcC: Richland	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
RcD: Richland	Fair: low strength, slope, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
RgC: Rigley	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones, slope
RgD: Rigley	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
RgE: Rigley	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
RhD:				
Rigley	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Se:				
Sebring	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Th:				
Tioga	Good	Probable	Probable	Poor: small stones, area reclaim
Tk:				
Tioga	Good	Probable	Probable	Poor: small stones, area reclaim
Tm:				
Tioga	Good	Probable	Probable	Poor: small stones, area reclaim
To:				
Tioga	Good	Probable	Probable	Poor: small stones, area reclaim
Urban land.				
TsB:				
Titusville	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey
TsC:				
Titusville	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, too clayey, slope
Ug:				
Udorthents.				
Uh:				
Udorthents.				
Up:				
Udorthents.				
Pits.				
WaA:				
Watertown	Good	Probable	Probable	Poor: small stones, area reclaim
WaB:				
Watertown	Good	Probable	Probable	Poor: small stones, area reclaim

Table 17.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
WaC:				
Watertown	Good	Probable	Probable	Poor: small stones, area reclaim
WaD:				
Watertown	Good	Probable	Probable	Poor: small stones, area reclaim
WaF:				
Watertown	Good	Probable	Probable	Poor: small stones, area reclaim
Wb:				
Wappinger	Good	Probable	Probable	Poor: area reclaim
WeC:				
Wellston	Fair: area reclaim, low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
WhC:				
Westmoreland	Fair: depth to rock, low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
WhD:				
Westmoreland	Fair: depth to rock, low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
WhE:				
Westmoreland	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
WnA:				
Wheeling	Fair: low strength	Probable	Probable	Fair: small stones
WnB:				
Wheeling	Fair: low strength	Probable	Probable	Fair: small stones
Zp:				
Zipp	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "fair" and "poor.")

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
AaB, AaC2:			
Aaron	Fair: too acid, erodes easily, too clayey	Poor: too clayey	Poor:* too clayey
AfB, AfC2:			
Alford	Poor: too acid	Poor: too acid	Fair: too acid, erodes easily
BgB, BgD, BgE:			
Bethesda	Fair: too acid, erodes easily	---	Poor: too acid
BhB, BhD, BhF:			
Bethesda	Poor: too acid	---	Poor: too acid
BrD, BrE, BrF:			
Brownsville	Poor: too acid	Poor: too acid	Poor:* too acid, droughty, large stones
BtF:			
Brownsville	Poor: too acid	Poor: too acid	Poor:* too acid, droughty, large stones
Rock outcrop.			
CdA:			
Caneadea	Fair: too acid, erodes easily, too clayey	Poor: too clayey	Poor: too clayey
CfA, CfB, CfC, CfD, CfE:			
Chili	Fair: too acid	Fair: too acid, droughty, too clayey	Poor: droughty, too sandy
CgA, CgB:			
Chili.			
Urban land.			
ChA, ChB:			
Cidermill	Fair: too acid, erodes easily	Fair: too acid, droughty, erodes easily, too clayey	Poor: droughty, too sandy

See footnotes at end of table.

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas--Continued

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
CkC, CkD:			
Clarksburg-------	Fair: too acid, erodes easily	Fair: too acid, droughty, too clayey	Fair: too acid, droughty, too clayey, large stones
CoB, CoC2, CoD, CoE:			
Coshocton-------	Fair: too acid, erodes easily	Poor: too acid	Poor:* too clayey
CpC, CpD:			
Coshocton--------	Fair: too acid, large stones	Poor: too acid	Poor:* too clayey
CrD, CrE:			
Coshocton--------	Fair: too acid, erodes easily	Poor: too acid	Poor:* too clayey
Rigley-----------	Fair: too acid	Poor: too acid	Poor: too acid
CsD, CsE:			
Coshocton--------	Fair: too acid, erodes easily	Poor: too acid	Poor:* too clayey
Westmoreland-----	Fair: too acid, erodes easily	Fair: too acid, too clayey	Fair:* too acid, droughty, too clayey, large stones
DeC:			
Dekalb-----------	Poor: too acid	Poor: too acid	Poor:* too acid, large stones
Ds:			
Dumps.			
EuA:			
Euclid-----------	Fair: erodes easily	Fair: erodes easily	Fair: erodes easily
FaB, FaD, FaE:			
Fairpoint--------	Fair: erodes easily	---	Poor: droughty
FeB, FeC:			
Farmerstown------	Fair: too acid, erodes easily	---	Poor: too acid, droughty

See footnotes at end of table.

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas--Continued

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
FhA, FhB:			
Fitchville	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Fair: erodes easily, too clayey
GdB, GdC2:			
Germano	Fair: too acid	Fair: too acid, droughty	**
GhB, GhC, GhD:			
Gilpin	Poor: too acid	Poor: too acid	**
GnA, GnB, GnC, GpA:			
Glenford	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Fair: erodes easily, too clayey
GuC, GuD:			
Guernsey	Fair: too acid, erodes easily	Poor: too clayey	Poor: too clayey
HaD, HaE, HaF:			
Hazleton	Poor: too acid	Poor: too acid, large stones	Poor:* too acid, large stones
HeF:			
Hazleton	Poor: too acid, large stones	Poor: too acid, large stones	Poor:* too acid, large stones
HoB, HoC:			
Homewood	Fair: too acid, erodes easily	Fair: too acid, droughty, erodes easily, too clayey	Fair: too acid, droughty, erodes easily, too clayey
Ht:			
Huntington	Good	Good	Poor: too sandy
JmA:			
Jimtown	Fair: too acid	Fair: too acid, droughty, too clayey	Poor: too sandy
KeB, KeC:			
Keene	Fair: too acid, erodes easily	Poor: too clayey	**
La, Lb:			
Landes	Good	Fair: droughty	Poor: too sandy

See footnotes at end of table.

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas--Continued

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
Lo: Lobdell	Fair: too acid, erodes easily	Fair: too acid, erodes easily	Fair: erodes easily
LrB, LrC: Loudon	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Poor:* too clayey
LvC, LvD: Loudonville	Fair: too acid	Fair: too acid, too clayey	**
MaB, MaC, MaD2: Markland	Fair: too acid, erodes easily	Poor: too clayey	Poor: too clayey
Mg, Mh: Melvin	Fair: erodes easily	Fair: erodes easily, too clayey	Fair: erodes easily, too clayey
MnA, MnB, MnC, MnD: Mentor	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Fair: too acid, erodes easily, too clayey
Ne, Nf: Newark	Fair: erodes easily	Fair: erodes easily, too clayey	Fair: erodes easily
Nn, No: Nolin	Fair: erodes easily	Fair: erodes easily, too clayey	Fair: erodes easily
Or: Orrville	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Fair: too acid, droughty, erodes easily
Pg, Ph: Pits.			
RcC, RcD: Richland	Fair: too acid, erodes easily	Fair: too acid, too clayey	Fair: droughty, too clayey
RgC, RgD, RgE: Rigley	Fair: too acid	Poor: too acid	Poor: too acid

See footnotes at end of table.

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas--Continued

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
RhD:			
Rigley	Fair: too acid, large stones	Poor: too acid	Poor: too acid
Se:			
Sebring	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Poor: too clayey
Th, Tk, Tm:			
Tioga	Fair: too acid, erodes easily	Fair: too acid, droughty, too sandy	Poor: droughty, too sandy
To:			
Tioga.			
Urban land.			
TsB, TsC:			
Titusville	Poor: too acid	Poor: too acid	Fair: too acid, droughty, erodes easily, too clayey
Ug, Uh:			
Udorthents.			
Up:			
Udorthents.			
Pits.			
WaA, WaB, WaC, WaD, WaF:			
Watertown	Fair: too acid	Poor: droughty	Poor: droughty, too sandy
Wb:			
Wappinger	Fair: too acid, erodes easily	Fair: too acid, droughty, too sandy	Poor: droughty, too sandy
WeC:			
Wellston	Fair: too acid, erodes easily	Fair: too acid, erodes easily, too clayey	Fair:* too acid, droughty, too clayey
WhC, WhD, WhE:			
Westmoreland	Fair: too acid, erodes easily	Fair: too acid, too clayey	Fair:* too acid, droughty, too clayey, large stones

See footnotes at end of table.

Table 18.--Soil Material for Reconstruction of Strip-Mined Areas--Continued

Map symbol and soil name	Surface layer (A horizon)	Subsoil (B horizon)	Substratum (C horizon)
WnA, WnB:			
Wheeling	Fair: too acid	Fair: too acid, droughty, too clayey	Poor: too sandy
Zp:			
Zipp	Fair: too clayey	Poor: too clayey	Fair: droughty, too clayey

* This soil is underlain by bedrock within a depth of 5 feet.

** This soil has no substratum or has only a thin substratum over bedrock.

Table 19.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates the soil was not evaluated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
AaB: Aaron	Moderate: depth to rock, slope	Severe: hard to pack	Severe: no water	Percs slowly, frost action, slope	Erodes easily, wetness	Erodes easily, percs slowly
AaC2: Aaron	Severe: slope	Severe: hard to pack	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
AfB: Alford	Moderate: seepage, slope	Moderate: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily
AfC2: Alford	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Slope, erodes easily
BgB: Bethesda	Moderate: slope	Severe: seepage, piping	Severe: no water	Deep to water	Large stones, erodes easily	Large stones, erodes easily
BgD: Bethesda	Severe: slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, large stones, erodes easily	Large stones, slope, erodes easily
BgE: Bethesda	Severe: slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, large stones, erodes easily	Large stones, slope, erodes easily
BhB: Bethesda	Moderate: slope	Severe: seepage, piping	Severe: no water	Deep to water	Large stones	Large stones, droughty
BhD: Bethesda	Severe: slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, large stones, slippage	Large stones, slope, droughty
BhF: Bethesda	Severe: slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, large stones, slippage	Large stones, slope, droughty
BrD: Brownsville	Severe: seepage, slope	Severe: piping, large stones	Severe: no water	Deep to water	Slope, large stones	Large stones, slope, droughty

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
BrE:						
Brownsville-----	Severe: seepage, slope	Severe: piping, large stones	Severe: no water	Deep to water	Slope, large stones	Large stones, slope, droughty
BrF:						
Brownsville-----	Severe: seepage, slope	Severe: piping, large stones	Severe: no water	Deep to water	Slope, large stones	Large stones, slope, droughty
BtF:						
Brownsville-----	Severe: seepage, slope	Severe: piping, large stones	Severe: no water	Deep to water	Slope, large stones	Large stones, slope, droughty
Rock outcrop.						
CdA:						
Caneadea--------	Slight	Moderate: hard to pack, wetness	Severe: no water	Percs slowly, frost action	Erodes easily, wetness	Wetness, erodes easily
CfA:						
Chili-----------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Favorable	Droughty
CfB:						
Chili-----------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Favorable	Droughty
CfC:						
Chili-----------	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope, droughty
CfD:						
Chili-----------	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope, droughty
CfE:						
Chili-----------	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope, droughty
CgA:						
Chili-----------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Favorable	Droughty
Urban land.						
CgB:						
Chili-----------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Favorable	Droughty
Urban land.						
ChA:						
Cidermill-------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
ChB:						
Cidermill-------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily
CkC:						
Clarksburg------	Severe: slope	Severe: piping	Severe: no water	Percs slowly, slope	Slope, erodes easily, wetness	Slope, erodes easily, rooting depth
CkD:						
Clarksburg------	Severe: slope	Severe: piping	Severe: no water	Percs slowly, slope	Slope, erodes easily, wetness	Slope, erodes easily, rooting depth
CoB:						
Coshocton-------	Moderate: seepage, slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Erodes easily, wetness	Erodes easily, percs slowly
CoC2:						
Coshocton-------	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
CoD:						
Coshocton-------	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
CoE:						
Coshocton-------	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
CpC:						
Coshocton-------	Severe: slope	Severe: thin layer	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
CpD:						
Coshocton-------	Severe: slope	Severe: thin layer	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
CrD:						
Coshocton-------	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
Rigley----------	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
CrE:						
Coshocton	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
Rigley	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
CsD:						
Coshocton	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
Westmoreland	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
CsE:						
Coshocton	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
Westmoreland	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
DeC:						
Dekalb	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, large stones, depth to rock	Large stones, slope, droughty
Ds:						
Dumps.						
EuA:						
Euclid	Slight	Severe: piping, wetness	Severe: slow refill	Flooding, frost action	Erodes easily, wetness	Wetness, erodes easily
FaB:						
Fairpoint	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Large stones, erodes easily	Large stones, erodes easily
FaD:						
Fairpoint	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, large stones, erodes easily	Large stones, slope, erodes easily
FaE:						
Fairpoint	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, large stones, erodes easily	Large stones, slope, erodes easily
FeB:						
Farmerstown	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Large stones, erodes easily	Large stones, erodes easily

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
FeC:						
Farmerstown	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, large stones, erodes easily	Large stones, slope, erodes easily
FhA:						
Fitchville	Moderate: seepage	Severe: piping	Severe: no water	Frost action	Erodes easily, wetness	Wetness, erodes easily
FhB:						
Fitchville	Moderate: seepage, slope	Severe: piping	Severe: no water	Frost action, slope	Erodes easily, wetness	Wetness, erodes easily
GdB:						
Germano	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Large stones, depth to rock	Large stones, droughty
GdC2:						
Germano	Severe: seepage, slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, large stones, depth to rock	Large stones, slope, droughty
GhB:						
Gilpin	Moderate: seepage, depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Large stones, depth to rock	Large stones, depth to rock
GhC:						
Gilpin	Severe: slope	Severe: thin layer	Severe: no water	Deep to water	Slope, large stones, depth to rock	Large stones, slope, depth to rock
GhD:						
Gilpin	Severe: slope	Severe: thin layer	Severe: no water	Deep to water	Slope, large stones, depth to rock	Large stones, slope, depth to rock
GnA:						
Glenford	Moderate: seepage	Severe: piping	Severe: no water	Frost action	Erodes easily, wetness	Erodes easily
GnB:						
Glenford	Moderate: seepage, slope	Severe: piping	Severe: no water	Frost action, slope	Erodes easily, wetness	Erodes easily
GnC:						
Glenford	Severe: slope	Severe: piping	Severe: no water	Frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily
GpA:						
Glenford	Moderate: seepage	Severe: piping	Severe: no water	Frost action	Erodes easily, wetness	Erodes easily
GuC:						
Guernsey	Severe: slope	Severe: hard to pack	Severe: no water	Percs slowly, slope, frost action	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
GuD: Guernsey	Severe: slope, slippage	Severe: hard to pack	Severe: no water	Percs slowly, slope, frost action	Slope, erodes easily, slippage	Slope, erodes easily, percs slowly
HaD: Hazleton	Severe: seepage, slope	Severe: seepage, large stones	Severe: no water	Deep to water	Slope, large stones, too sandy	Large stones, slope, droughty
HaE: Hazleton	Severe: seepage, slope	Severe: seepage, large stones	Severe: no water	Deep to water	Slope, large stones, too sandy	Large stones, slope, droughty
HaF: Hazleton	Severe: seepage, slope	Severe: seepage, large stones	Severe: no water	Deep to water	Slope, large stones, too sandy	Large stones, slope, droughty
HeF: Hazleton	Severe: seepage, slope	Severe: seepage, large stones	Severe: no water	Deep to water	Slope, large stones, too sandy	Large stones, slope, droughty
HoB: Homewood	Moderate: seepage, slope	Severe: piping	Severe: no water	Percs slowly, slope	Erodes easily, wetness	Erodes easily, rooting depth
HoC: Homewood	Severe: slope	Severe: piping	Severe: no water	Percs slowly, slope	Slope, erodes easily, wetness	Slope, erodes easily, rooting depth
Ht: Huntington	Moderate: seepage	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Favorable	Favorable
JmA: Jimtown	Severe: seepage	Severe: seepage, piping, wetness	Severe: cutbanks cave	Frost action, cutbanks cave	Wetness, too sandy	Wetness
KeB: Keene	Moderate: seepage, slope	Moderate: thin layer, piping, hard to pack	Severe: no water	Percs slowly, frost action, slope	Erodes easily, wetness	Erodes easily, percs slowly
KeC: Keene	Severe: slope	Moderate: thin layer, piping, hard to pack	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, percs slowly
La: Landes	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Too sandy, soil blowing	Favorable

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
Lb:						
Landes----------	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Too sandy	Favorable
Lo:						
Lobdell---------	Severe: seepage	Severe: piping	Moderate: deep to water, slow refill	Flooding, frost action	Erodes easily, wetness	Erodes easily
LrB:						
Loudon----------	Moderate: seepage, slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Erodes easily, wetness	Erodes easily, rooting depth
LrC:						
Loudon----------	Severe: slope	Moderate: thin layer, hard to pack, wetness	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, rooting depth
LvC:						
Loudonville-----	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, area reclaim	Slope, depth to rock, area reclaim
LvD:						
Loudonville-----	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, area reclaim	Slope, depth to rock, area reclaim
MaB:						
Markland--------	Moderate: slope	Moderate: thin layer, hard to pack	Severe: no water	Deep to water	Erodes easily, percs slowly	Erodes easily, percs slowly
MaC:						
Markland--------	Severe: slope	Moderate: thin layer, hard to pack	Severe: no water	Deep to water	Slope, erodes easily, percs slowly	Slope, erodes easily, percs slowly
MaD2:						
Markland--------	Severe: slope	Moderate: thin layer, hard to pack	Severe: no water	Deep to water	Slope, erodes easily, percs slowly	Slope, erodes easily, percs slowly
Mg:						
Melvin----------	Moderate: seepage	Severe: piping, wetness	Moderate: slow refill	Flooding	Erodes easily, wetness	Wetness, erodes easily
Mh:						
Melvin----------	Moderate: seepage	Severe: piping, ponding	Moderate: slow refill	Ponding, flooding	Erodes easily, ponding	Wetness, erodes easily
MnA:						
Mentor----------	Moderate: seepage	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Erodes easily	Erodes easily

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
MnB: Mentor----------	Moderate: seepage, slope	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Erodes easily	Erodes easily
MnC: Mentor----------	Severe: slope	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Slope, erodes easily	Slope, erodes easily
MnD: Mentor----------	Severe: slope	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Slope, erodes easily	Slope, erodes easily
Ne: Newark----------	Moderate: seepage	Severe: piping, wetness	Moderate: slow refill	Flooding, frost action	Erodes easily, wetness	Wetness, erodes easily
Nf: Newark----------	Moderate: seepage	Severe: piping, wetness	Moderate: slow refill	Flooding, frost action	Erodes easily, wetness	Wetness, erodes easily
Nn: Nolin-----------	Severe: seepage	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Erodes easily	Erodes easily
No: Nolin-----------	Severe: seepage	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Erodes easily	Erodes easily
Or: Orrville--------	Moderate: seepage	Severe: piping, wetness	Severe: cutbanks cave	Flooding, frost action	Erodes easily, wetness	Wetness, erodes easily
Pg: Pits.						
Ph: Pits.						
RcC: Richland--------	Severe: slope	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Slope, erodes easily	Slope, erodes easily
RcD: Richland--------	Severe: slope	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Slope, erodes easily	Slope, erodes easily
RgC: Rigley----------	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope	Slope

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
RgD: Rigley	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope	Slope
RgE: Rigley	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
RhD: Rigley	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, large stones	Large stones, slope
Se: Sebring	Moderate: seepage	Severe: piping, ponding	Severe: slow refill	Ponding, frost action	Erodes easily, ponding	Wetness, erodes easily
Th: Tioga	Severe: seepage	Severe: piping	Severe: cutbanks cave	Deep to water	Erodes easily	Erodes easily, droughty
Tk: Tioga	Severe: seepage	Severe: piping	Severe: cutbanks cave	Deep to water	Erodes easily	Erodes easily, droughty
Tm: Tioga	Severe: seepage	Severe: piping	Severe: cutbanks cave	Deep to water	Erodes easily	Erodes easily, droughty
To: Tioga	Severe: seepage	Severe: piping	Severe: cutbanks cave	Deep to water	Erodes easily	Erodes easily, droughty
Urban land.						
TsB: Titusville	Moderate: slope	Severe: piping	Severe: no water	Percs slowly, frost action, slope	Erodes easily, wetness	Erodes easily, rooting depth
TsC: Titusville	Severe: slope	Severe: piping	Severe: no water	Percs slowly, frost action, slope	Slope, erodes easily, wetness	Slope, erodes easily, rooting depth
Ug: Udorthents. loamy.						
Uh: Udorthents, loamy-skeletal.						
Up: Udorthents.						
Pits.						

Table 19.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
WaA: Watertown	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Too sandy, soil blowing	Droughty
WaB: Watertown	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Too sandy, soil blowing	Droughty
WaC: Watertown	Severe: seepage, slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, too sandy, soil blowing	Slope, droughty
WaD: Watertown	Severe: seepage, slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, too sandy, soil blowing	Slope, droughty
WaF: Watertown	Severe: seepage, slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, too sandy, soil blowing	Slope, droughty
Wb: Wappinger	Severe: seepage	Severe: piping	Severe: cutbanks cave	Deep to water	Not needed	Not needed
WeC: Wellston	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Slope, erodes easily
WhC: Westmoreland	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
WhD: Westmoreland	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
WhE: Westmoreland	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope	Slope
WnA: Wheeling	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Favorable	Favorable
WnB: Wheeling	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Favorable	Favorable
Zp: Zipp	Slight	Severe: ponding	Severe: slow refill	Ponding, percs slowly, flooding	Ponding, percs slowly	Wetness, percs slowly

Table 20.--Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AaB:												
Aaron-----------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0-5	90-100	90-100	85-100	80-100	45-70	22-43
	8-43	Silty clay loam, silty clay, clay	CL, CH	A-7	0	0-5	95-100	95-100	85-100	70-90	20-35	5-15
	43-53	Silty clay, clay	CL, CH	A-7	0	0-10	75-90	75-90	70-90	65-90	45-65	22-40
	53-58	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
AaC2:												
Aaron-----------	0-5	Silt loam	CL-ML, CL	A-4, A-6	0	0	95-100	95-100	85-100	70-90	20-35	5-15
	5-45	Silty clay, loam, silty clay, clay	CL, CH	A-7	0	0-5	90-100	90-100	85-100	80-100	45-70	22-43
	45-53	Silty clay, clay	CL, CH	A-7	0	0-10	75-90	75-90	70-90	65-90	45-65	22-40
	53-58	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
AfB:												
Alford----------	0-10	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	10-62	Silty clay loam, silt loam	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	8-32
	62-80	Silt loam, silty clay loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	15-40	3-20
AfC2:												
Alford----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	7-65	Silty clay loam, silt loam	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	8-32
	65-80	Silt, silt loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	15-40	3-20
BgB:												
Bethesda--------	0-8	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-100	51-90	25-40	4-14
	8-80	Very channery clay loam, very channery loam	GM, GC, ML, CL	A-4, A-6, A-7, A-2	0	10-30	40-80	25-65	20-65	18-60	24-50	3-23

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BgD:												
Bethesda--------	0-8	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-100	51-90	25-40	4-14
	8-80	Very channery clay loam, very channery loam	GM, GC, ML, CL	A-4, A-6, A-7, A-2	0	10-30	40-80	25-65	20-65	18-60	24-50	3-23
BgE:												
Bethesda--------	0-6	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-100	51-90	25-40	4-14
	6-80	Very channery clay loam, very channery loam	GM, GC, ML, CL	A-4, A-6, A-7, A-2	0	10-30	40-80	25-65	20-65	18-60	24-50	3-23
BhB:												
Bethesda--------	0-2	Channery loam	ML, GM, GM-GC, CL-ML	A-4, A-6	0	0-15	65-90	55-80	50-80	35-75	25-40	4-14
	2-80	Very channery loam, very channery clay loam, channery loam	GM-GC, ML, CL, GM	A-4, A-6, A-7, A-2	0	10-30	45-80	25-65	25-65	20-60	24-50	3-23
BhD:												
Bethesda--------	0-4	Channery loam	ML, GM, GM-GC, CL-ML	A-4, A-6	0	0-15	65-90	55-80	50-80	35-75	25-40	4-14
	4-80	Very channery loam, very channery clay loam, channery loam	GM-GC, ML, CL, GM	A-4, A-6, A-7, A-2	0	10-30	45-80	25-65	25-65	20-60	24-50	3-23
BhF:												
Bethesda--------	0-3	Channery loam	ML, GM, GM-GC, CL-ML	A-4, A-6	0	0-15	65-90	55-80	50-80	35-75	25-40	4-14
	3-80	Very channery loam, very channery clay loam, channery loam	GM-GC, ML, CL, GM	A-4, A-6, A-7, A-2	0	10-30	45-80	25-65	25-65	20-60	24-50	3-23

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BrD:												
Brownsville-----	0-6	Channery silt loam	ML, CL-ML, GM, GM-GC	A-4	0	0-15	50-80	45-70	40-70	35-60	25-35	5-10
	6-35	Very channery silt loam, channery silt loam, very flaggy silt loam	ML, CL-ML, GM, GM-GC	A-1, A-2, A-4	0	5-40	35-80	30-70	25-70	20-60	25-35	5-10
	35-60	Channery silt loam, extremely channery loam, very flaggy silt loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0	15-60	25-65	20-55	15-50	10-45	20-35	2-10
	60-62	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
BrE:												
Brownsville-----	0-6	Channery silt loam	ML, CL-ML, GM, GM-GC	A-4	0	0-15	50-80	45-70	40-70	35-60	25-35	5-10
	6-38	Very channery silt loam, extremely channery silt loam	ML, CL-ML, GM, GM-GC	A-1, A-2, A-4	0	5-40	35-80	30-70	25-70	20-60	25-35	5-10
	38-65	Extremely channery silt loam, extremely channery loam, extremely flaggy silt loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0	15-60	25-65	20-55	15-50	10-45	20-35	2-10
	65-70	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BrF:												
Brownsville-----	0-6	Channery silt loam	ML, CL-ML, GM, GM-GC	A-4	0	0-15	50-80	45-70	40-70	35-60	25-35	5-10
	6-30	Channery silt loam, extremely channery loam, very flaggy silt loam	ML, CL-ML, GM, GM-GC	A-1, A-2, A-4	0	5-40	35-80	30-70	25-70	20-60	25-35	5-10
	30-60	Channery silt loam, extremely channery loam, extremely flaggy silt loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0	15-60	25-65	20-55	15-50	10-45	20-35	2-10
	60-65	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
BtF*:												
Brownsville-----	0-5	Channery silt loam	ML, CL-ML, GM, GM-GC	A-4	0	0-15	50-80	45-70	40-70	35-60	25-35	5-10
	5-30	Channery silt loam, extremely channery loam, very flaggy silt loam	ML, CL-ML, GM, GM-GC	A-1, A-2, A-4	0	5-40	35-80	30-70	25-70	20-60	25-35	5-10
	30-60	Channery silt loam, extremely channery loam, extremely flaggy silt loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0	15-60	25-65	20-55	15-50	10-45	20-35	2-10
	60-65	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CdA:												
Caneadea--------	0-8	Silt loam	CL	A-7, A-6	0	0	100	90-100	90-100	75-95	30-45	10-24
	8-44	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	90-100	85-100	40-60	18-34
	44-80	Silty clay, silty clay loam	CH, CL	A-7, A-6	0	0	100	95-100	90-100	85-100	35-55	12-28
CfA:												
Chili-----------	0-8	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	8-30	Loam, gravelly clay loam, very gravelly clay loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	30-48	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	48-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP
CfB:												
Chili-----------	0-9	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	9-35	Loam, gravelly loam, gravelly sandy loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	35-45	Gravelly clay loam, very gravelly loam, gravelly sandy losm	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	45-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
CfC:												
Chili-----------	0-9	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	9-33	Loam, gravelly loam, gravelly sandy loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	33-42	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	42-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP
CfD:												
Chili-----------	0-7	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	7-25	Loam, gravelly clay loam, gravelly loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	25-42	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	42-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP
CfE:												
Chili-----------	0-5	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	5-24	Loam, gravelly loam, gravelly sandy loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	24-33	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	33-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CgA*:												
Chili-----------	0-8	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	8-30	Loam, gravelly clay loam, very gravelly clay loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	30-48	Very gravelly sandy loam, very gravelly loam, gravelly sandy loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	48-80	Stratified gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP
Urban land.												
CgB*:												
Chili-----------	0-9	Loam	ML, CL-ML	A-4	0	0	85-100	75-100	65-85	55-75	25-35	4-10
	9-35	Loam, gravelly clay loam, gravelly sandy loam	ML, SM, GM, CL	A-4, A-2, A-6, A-1-b	0	0	65-100	50-80	35-70	20-65	0-30	NP-12
	35-45	Clay loam, very gravelly loam, gravelly clay loam	SM, GM, GM-GC, SC-SM	A-1, A-2	0	0-5	45-80	35-75	25-55	15-35	0-30	NP-8
	45-85	Stratified very gravelly loamy sand to very gravelly sand	GW, GM, SP, SM	A-1	0	5-10	30-70	25-65	10-45	2-20	0-14	NP
Urban land.												
ChA:												
Cidermill-------	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	12-30	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	30-43	Loam, very fine sandy loam	ML, SM, GM, CL	A-4, A-2, A-6	0	0-5	65-100	40-85	35-75	30-70	0-30	NP-15
	43-80	Stratified gravelly sandy loam to very gravelly coarse sand	SM, GM, GW, SP	A-1	0	0-15	30-70	25-65	10-45	2-25	0-14	NP

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ChB:												
Cidermill-------	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	10-32	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	32-50	Loam, gravelly loam, gravelly sandy loam	ML, SM, GM, CL	A-4, A-2, A-6	0	0-5	65-100	40-85	35-75	30-70	0-30	NP-15
	50-80	Stratified gravelly sandy loam to very gravelly coarse sand	SM, GM, GW, SP	A-1	0	0-15	30-70	25-65	10-45	2-25	0-14	NP
CkC:												
Clarksburg------	0-16	Silt loam	CL, ML	A-4, A-6	0	0-5	90-100	85-100	80-95	75-90	25-35	2-11
	16-31	Loam, channery clay loam, gravelly silt loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	80-100	65-100	60-95	55-85	25-45	6-20
	31-43	Silty clay loam, channery clay loam, gravelly silt loam	CL-ML, CL, SC-SM, SC	A-4, A-6, A-7	0	0-15	75-100	55-100	50-95	45-90	20-45	4-20
	43-80	Channery loam, silty clay loam	CL, CH, SC-SM, GC	A-4, A-6, A-7, A-2	0	0-20	50-100	20-100	15-95	15-90	20-52	4-25
CkD:												
Clarksburg------	0-13	Silt loam	CL, ML	A-4, A-6	0	0-5	90-100	85-100	80-95	75-90	25-35	2-11
	13-32	Loam, channery loam, gravelly silt loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	80-100	65-100	60-95	55-85	25-45	6-20
	32-65	Silty clay loam, channery clay loam, gravelly silt loam	CL-ML, CL, SC-SM, SC	A-4, A-6, A-7	0	0-15	75-100	55-100	50-95	45-90	20-45	4-20
	65-80	Channery loam, silty clay loam	CL, CH, SC-SM, GC	A-4, A-6, A-7, A-2	0	0-20	50-100	20-100	15-95	15-90	20-52	4-25

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CoB:												
Coshocton-------	0-10	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	10-15	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	15-37	Silty clay loam, channery silty clay, loam	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	37-50	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	50-55	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
CoC2:												
Coshocton-------	0-7	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	7-14	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	14-46	Silty clay loam, channery silty clay, channery loam	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	46-58	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	58-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CoD:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-12	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	12-45	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	45-58	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	58-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
CoE:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-12	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	12-35	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	35-48	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	48-50	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CpC:												
Coshocton-------	0-5	Silt loam	ML, CL-ML	A-4, A-6	0	3-15	85-100	80-100	70-95	60-90	25-40	4-12
	5-46	Silt loam, silty clay loam, channery loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	46-80	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	35-95	30-85	30-80	30-55	16-35
CpD:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	3-15	85-100	80-100	70-95	60-90	25-40	4-12
	6-46	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	46-80	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	35-95	30-85	30-80	30-55	16-35
CrD*:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-12	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	12-45	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	45-58	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	58-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CrD*:												
Rigley----------	0-10	Sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	10-57	Channery sandy loam, channery loam, sandy loam	SM, ML, GM, GM-GC	A-2, A-4, A-1	0	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	57-70	Channery sandy loam, channery loam, very channery sandy loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	55-80	45-70	30-60	15-50	0-35	NP-15
CrE*:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-21	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	21-35	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	35-48	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	48-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rigley----------	0-5	Sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	5-52	Channery sandy loam, channery loam, sandy loam	SM, ML, GM, GM-GC	A-2, A-4, A-1	0	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	52-62	Channery sandy loam, channery loam, very channery sandy loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	55-80	45-70	30-60	15-50	0-35	NP-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CsD*:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-12	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	12-45	Silty clay loam, silty clay	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	45-58	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	58-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Westmoreland----	0-7	Silt loam	ML, CL	A-4, A-6	0	0	85-100	80-100	75-95	60-95	0-35	NP-10
	7-38	Silt loam, channery loam, channery silt loam	CL, ML, GM, GC	A-4, A-6, A-7	0	0-15	65-100	55-95	50-90	45-85	22-45	2-20
	38-55	Very channery loam, very channery silt loam, channery silty clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	25-95	20-95	15-90	15-80	20-40	2-20
	55-84	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
CsE:												
Coshocton-------	0-6	Silt loam	ML, CL-ML	A-4, A-6	0	0-5	85-100	80-100	70-95	60-90	25-40	4-12
	6-12	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-95	60-90	25-40	6-18
	12-35	Silty clay loam, silt loam	CL, CH	A-7, A-6	0	0-10	70-100	60-95	55-90	50-85	35-55	20-35
	35-48	Channery silty clay loam, silty clay, very channery loam	CL, CH, GC, SC	A-7, A-6, A-2	0	0-20	40-100	30-95	30-85	30-80	30-55	16-35
	48-53	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
CsE:												
Westmoreland----	0-5	Silt loam	ML, CL	A-4, A-6	0	0	85-100	80-100	75-95	60-95	0-35	NP-10
	5-39	Silty clay loam, channery loam, channery silt loam	CL, ML, GM, GC	A-4, A-6, A-7	0	0-15	65-100	55-95	50-90	45-85	22-45	2-20
	39-60	Very channery loam, very channery silt loam, channery silty clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	25-95	20-95	15-90	15-80	20-40	2-20
	60-65	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
DeC:												
Dekalb----------	0-5	Channery sandy loam	SM, GM, ML, CL-ML	A-2, A-4, A-1	0-1	5-10	50-90	45-80	40-75	20-55	10-32	NP-10
	5-24	Channery sandy loam, channery loam, very channery sandy loam	SM, GM, ML, GM-GC	A-2, A-4, A-1	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	24-36	Very channery sandy loam, very flaggy sandy loam, extremely channery loamy sand	SM, GM, SC, GC	A-2, A-4, A-1	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	36-38	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Ds:												
Dumps.												
EuA:												
Euclid----------	0-9	Silt loam	ML, CL-ML	A-4	0	0	100	100	95-100	85-100	25-35	4-10
	9-48	Silty clay loam, silt loam	CL, CL-ML	A-6, A-4	0	0	100	95-100	90-100	80-100	25-40	4-15
	48-80	Silty clay loam, silt loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	70-95	20-35	2-13

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FaB:												
Fairpoint-------	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	80-100	70-100	50-90	20-40	4-18
	10-80	Very channery silty clay loam, clay loam, extremely channery silty clay loam	GC, CL, CL-ML, SC	A-4, A-6, A-7, A-2	0	15-30	55-75	25-65	20-65	15-60	25-50	4-24
FaD:												
Fairpoint-------	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	80-100	70-100	50-90	20-40	4-18
	10-80	Very channery silty clay loam, clay loam, extremely channery silty clay loam	GC, CL, CL-ML, SC	A-4, A-6, A-7, A-2	0	15-30	55-75	25-65	20-65	15-60	25-50	4-24
FaE:												
Fairpoint-------	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	80-100	70-100	50-90	20-40	4-18
	10-80	Very channery silty clay loam, clay loam, extremely channery silty clay loam	GC, CL, CL-ML, SC	A-4, A-6, A-7, A-2	0	15-30	55-75	25-65	20-65	15-60	25-50	4-24
FeB:												
Farmerstown-----	0-4	Loam	CL, CL-ML, ML	A-6, A-4	0	0-5	90-100	80-100	70-100	50-90	25-40	4-14
	4-30	Loam, clay loam, channery loam	CL, ML, SM, SC	A-4, A-6, A-7	0	0-5	75-100	65-100	55-95	40-85	25-50	3-23
	30-80	Very channery silt loam, channery clay loam, very channery clay loam	CL, GC, GM, ML	A-4, A-6, A-7, A-2	0	10-30	65-90	45-85	40-80	30-70	25-50	3-23

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FeC:												
Farmerstown-----	0-6	Loam	CL, CL-ML, ML	A-6, A-4	0	0-5	90-100	80-100	70-100	50-90	25-40	4-14
	6-32	Loam, clay loam, channery silty clay loam	CL, ML, SM, SC	A-4, A-6, A-7	0	0-5	75-100	65-100	55-95	40-85	25-50	3-23
	32-80	Channery silty clay loam, channery loam, very channery silty clay loam	CL, GC, GM, ML	A-4, A-6, A-7, A-2	0	10-30	65-90	45-85	40-80	30-70	25-50	3-23
FhA:												
Fitchville------	0-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-40	4-16
	9-40	Silt loam, silty clay loam	CL, ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	28-50	5-23
	40-80	Silt loam, fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	60-100	20-40	3-18
FhB:												
Fitchville------	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-40	4-16
	7-38	Silt loam, silty clay loam	CL, ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	28-50	5-23
	38-80	Silt loam, fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	60-100	20-40	3-18
GdB:												
Germano---------	0-8	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-10	85-100	80-100	50-70	25-40	15-20	NP-5
	8-24	Sandy loam, fine sandy loam, channery sandy loam	SM, SC-SM, GM	A-2-4, A-1-b, A-4	0	0-20	65-100	50-95	30-75	15-50	15-30	NP-7
	24-32	Channery sandy loam, very channery sandy loam, extremely channery loamy sand	SM, SC-SM, GM	A-2-4, A-3, A-1	0-5	0-30	30-85	10-75	10-70	5-35	15-20	NP-5
	32-37	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GdC2:												
Germano---------	0-10	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-10	85-100	80-100	50-70	25-40	15-20	NP-5
	10-20	Sandy loam, channery loam	SM, SC-SM, GM	A-2-4, A-1-b, A-4	0	0-20	65-100	50-95	30-75	15-50	15-30	NP-7
	20-24	Channery sandy loam, very channery sandy loam, extremely channery loamy sand	SM, SC-SM, GM	A-2-4, A-3, A-1	0-5	0-30	30-85	10-75	10-70	5-35	15-20	NP-5
	24-29	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
GhB:												
Gilpin----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	6-18	Channery loam, silt loam, loam	GC, SC, CL, CL-ML	A-2, A-4, A-6	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	18-24	Channery loam, very channery silt loam, very channery silty clay loam	GC, GM-GC	A-1, A-2, A-4, A-6	0	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	24-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
GhC:												
Gilpin----------	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	5-23	Channery loam, silt loam, channery silt loam	GC, SC, CL, CL-ML	A-2, A-4, A-6	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	23-32	Channery loam, very channery silt loam, very channery loam	GC, GM-GC	A-1, A-2, A-4, A-6	0	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	32-37	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GhD:												
Gilpin----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	6-20	Loam, silt loam, silty clay loam	GC, SC, CL, CL-ML	A-2, A-4, A-6	0	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	20-36	Channery loam, very channery silt loam, very channery loam	GC, GM-GC	A-1, A-2, A-4, A-6	0	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	36-41	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
GnA:												
Glenford--------	0-9	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	9-24	Silty clay loam, silt loam	CL, CL-ML, ML	A-6, A-7, A-4	0	0	100	100	95-100	80-100	25-45	5-18
	24-35	Silt loam, silty clay loam	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	90-100	75-100	20-40	3-18
	35-80	Stratified silt loam to fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
GnB:												
Glenford--------	0-11	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	11-21	Silty clay loam, silt loam	CL, CL-ML, ML	A-6, A-7, A-4	0	0	100	100	95-100	80-100	25-45	5-18
	21-54	Silt loam, silty clay loam	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	90-100	75-100	20-40	3-18
	54-80	Stratified silt loam to fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GnC:												
Glenford--------	0-8	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	8-28	Silty clay loam, silt loam	CL, CL-ML, ML	A-6, A-7, A-4	0	0	100	100	95-100	80-100	25-45	5-18
	28-40	Silt loam, silty clay loam	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	90-100	75-100	20-40	3-18
	40-80	Stratified silt loam to fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
GpA:												
Glenford--------	0-8	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	8-29	Silty clay loam, silt loam	CL, CL-ML, ML	A-6, A-7, A-4	0	0	100	100	95-100	80-100	25-45	5-18
	29-48	Silt loam, silty clay loam	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	90-100	75-100	20-40	3-18
	48-80	Stratified silt loam to fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
GuC:												
Guernsey--------	0-7	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0-2	90-100	80-100	75-100	70-90	25-40	4-14
	7-23	Silty clay loam, silt loam	CL, CH, ML, MH	A-7, A-6	0	0-2	90-100	80-100	75-100	70-100	30-55	10-30
	23-46	Silty clay, clay, silty clay loam	CH, CL, ML, MH	A-7	0	0-10	75-100	65-100	60-100	55-100	45-65	15-35
	46-80	Clay, silty clay, channery silty clay	CH, MH, ML, CL	A-7	0	0-20	70-100	60-90	55-90	55-90	40-70	15-40

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GuD:												
Guernsey--------	0-9	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0-2	90-100	80-100	75-100	70-90	25-40	4-14
	9-21	Silty clay loam, silt loam	CL, CH, ML, MH	A-7, A-6	0	0-2	90-100	80-100	75-100	70-100	30-55	10-30
	21-53	Silty clay, clay, silty clay loam	CH, CL, ML, MH	A-7	0	0-10	75-100	65-100	60-100	55-100	45-65	15-35
	53-80	Clay, silty clay, channery silty clay loam	CH, MH, ML, CL	A-7	0	0-20	70-100	60-90	55-90	55-90	40-70	15-40
HaD:												
Hazleton--------	0-8	Channery sandy loam	ML, GM, SM	A-2, A-4	0	0-15	60-85	60-80	60-75	35-55	0-14	NP
	8-40	Channery sandy loam, very channery sandy loam	GM, SM, ML, SC	A-2, A-4, A-1	0	0-50	60-95	45-90	35-70	20-55	0-30	NP-8
	40-55	Very channery loamy sand, extremely channery loamy sand	GM, SM, SC, GC	A-2, A-1, A-4	0-1	0-60	55-80	35-75	25-65	15-50	0-30	NP-8
	55-57	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
HaE:												
Hazleton--------	0-3	Channery sandy loam	ML, GM, SM	A-2, A-4	0	0-15	60-85	60-80	60-75	35-55	0-14	NP
	3-42	Channery sandy loam, very channery sandy loam, extremely channery loamy sand	GM, SM, ML, SC	A-2, A-4, A-1	0	0-50	60-95	45-90	35-70	20-55	0-30	NP-8
	42-62	Channery loam, very channery sandy loam, extremely channery loamy sand	GM, SM, SC, GC	A-2, A-1, A-4	0-1	0-60	55-80	35-75	25-65	15-50	0-30	NP-8
	62-64	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
HaF:												
Hazleton--------	0-3	Channery sandy loam	ML, GM, SM	A-2, A-4	0	0-15	60-85	60-80	60-75	35-55	0-14	NP
	3-41	Channery sandy loam, very channery sandy loam, extremely channery sandy loam	GM, SM, ML, SC	A-2, A-4, A-1	0	0-50	60-95	45-90	35-70	20-55	0-30	NP-8
	41-60	Channery loam, very channery sandy loam, extremely channery loamy sand	GM, SM, SC, GC	A-2, A-1, A-4	0-1	0-60	55-80	35-75	25-65	15-50	0-30	NP-8
	60-65	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
HeF:												
Hazleton--------	0-4	Channery sandy loam	ML, GM, SM	A-4, A-2	0-6	5-15	60-85	50-80	50-70	35-55	0-14	NP
	4-35	Channery sandy loam, extremely channery sandy loam, loam	GM, SM, ML, SC	A-2, A-4, A-1	0-6	0-50	60-95	45-90	35-70	20-55	0-30	NP-8
	35-50	Channery loam, very channery sandy loam, extremely channery loamy sand	GM, SM, SC, GC	A-2, A-1, A-4	0-6	5-60	55-80	35-75	25-65	15-50	0-30	NP-8
	50-55	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
HoB:												
Homewood--------	0-9	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	75-100	25-35	NP-10
	9-27	Loam, silt loam, clay loam	ML, CL	A-4, A-6	0	0-2	90-100	85-100	75-100	55-80	30-40	5-15
	27-56	Loam, clay loam, gravelly silt loam	CL-ML, CL, ML, SC-SM	A-4, A-6	0	0-5	70-100	60-95	55-90	45-80	25-40	5-15
	56-80	Loam, clay loam, gravelly silt loam	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0-10	70-100	55-95	50-90	40-80	20-35	5-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
HoC:												
Homewood--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	75-100	25-35	NP-10
	8-28	Loam, silt loam, clay loam	ML, CL	A-4, A-6	0	0-2	90-100	85-100	75-100	55-80	30-40	5-15
	28-65	Loam, clay loam, gravelly silt loam	CL-ML, CL, ML, SC-SM	A-4, A-6	0	0-5	70-100	60-95	55-90	45-80	25-40	5-15
	65-80	Loam, clay loam, gravelly silt loam	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0-10	70-100	55-95	50-90	40-80	20-35	5-15
Ht:												
Huntington------	0-20	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	25-40	5-15
	20-42	Silt loam, silty clay loam, very fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	25-40	5-15
	42-80	Stratified fine sand to silty clay loam	SM, SC, ML, CL	A-2, A-4	0	0-10	95-100	60-100	50-90	30-75	0-30	NP-10
JmA:												
Jimtown---------	0-13	Loam	ML, CL-ML, CL	A-4	0	0	95-100	75-100	60-95	50-80	20-30	NP-8
	13-28	Loam, gravelly loam, gravelly clay loam	CL-ML, CL, SC-SM, SC	A-4, A-6, A-2	0	0-2	75-100	55-100	45-95	30-75	25-40	4-15
	28-43	Sandy loam, gravelly sandy loam, very gravelly loamy sand	SM, SC, GM, GC	A-1, A-4, A-2	0	0-5	50-90	40-75	30-70	20-55	0-30	NP-8
	43-80	Stratified gravelly loam to very gravelly sand	SM, GM	A-1, A-4, A-2	0	0-5	45-90	30-80	20-75	15-50	0-30	NP-7

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
KeB:												
Keene-----------	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-95	25-36	4-12
	9-20	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0	95-100	90-100	85-100	75-100	25-40	6-18
	20-39	Silty clay loam, silty clay	CL, CH	A-6, A-7	0	0-5	95-100	75-100	70-95	65-90	30-55	10-28
	39-52	Channery silty clay loam, channery silty clay, clay	CL, CH	A-6, A-7	0	5-20	65-100	55-100	55-90	50-85	30-55	10-28
	52-57	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
KeC:												
Keene-----------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-95	25-36	4-12
	7-13	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0	95-100	90-100	85-100	75-100	25-40	6-18
	13-40	Silty clay loam, silty clay	CL, CH	A-6, A-7	0	0-5	95-100	75-100	70-95	65-90	30-55	10-28
	40-55	Channery silty clay loam, shaly silty clay, clay	CL, CH	A-6, A-7	0	5-20	65-100	55-100	55-90	50-85	30-55	10-28
	55-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
La:												
Landes----------	0-10	Sandy loam	SM, SC, SC-SM	A-4, A-2-4	0	0	100	70-100	70-95	20-50	0-25	NP-10
	10-38	Loam, fine sandy loam, loamy fine sand	SM, CL-ML, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-100	15-60	0-25	NP-10
	38-80	Stratified sand to silt loam	SM, SP-SM, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-85	10-50	0-30	NP-10
Lb:												
Landes----------	0-18	Loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	85-100	50-75	20-35	5-15
	18-34	Loam, fine sandy loam, loamy fine sand	SM, CL-ML, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-100	15-60	0-25	NP-10
	34-80	Stratified sand to silt loam	SM, SP-SM, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-85	10-50	0-30	NP-10

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Lo:												
Lobdell---------	0-9	Silt loam	ML, CL-ML, CL	A-4	0	0	95-100	90-100	80-100	65-90	20-30	NP-8
	9-47	Loam, silt loam	ML	A-4	0	0	90-100	80-100	70-95	55-85	20-35	NP-10
	47-80	Stratified sandy loam to silt loam	ML, SM, CL-ML, CL	A-4	0	0	90-100	80-100	65-85	40-80	15-35	NP-10
LrB:												
Loudon----------	0-10	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	4-12
	10-18	Silt loam, silty clay loam	CL, ML	A-6, A-4	0	0	100	95-100	90-100	75-95	30-40	6-16
	18-50	Silty clay loam, silty clay, clay	CL, CH	A-6, A-7	0	0-5	85-100	75-95	70-95	65-90	35-55	15-30
	50-65	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0-5	85-100	75-100	70-100	65-95	45-65	20-35
	65-70	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
LrC:												
Loudon----------	0-8	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	4-12
	8-15	Silt loam, silty clay loam	CL, ML	A-6, A-4	0	0	100	95-100	90-100	75-95	30-40	6-16
	15-40	Silty clay loam, clay loam	CL, CH	A-6, A-7	0	0-5	85-100	75-95	70-95	65-90	35-55	15-30
	40-80	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0-5	85-100	75-100	70-100	65-95	45-65	20-35
LvC:												
Loudonville-----	0-9	Silt loam	ML, CL-ML	A-4	0	0-1	95-100	80-100	70-95	55-90	20-35	2-10
	9-25	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-2	90-100	80-100	65-90	50-85	25-42	6-18
	25-32	Loam, silt loam, very channery silt loam	ML, SM, GM	A-4	0	2-25	55-90	45-80	40-75	35-60	20-35	NP-8
	32-34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LvD:												
Loudonville-----	0-8	Silt loam	ML, CL-ML	A-4	0	0-1	95-100	80-100	70-95	55-90	20-35	2-10
	8-17	Loam, silt loam, channery loam	CL, CL-ML	A-4, A-6, A-7	0	0-2	90-100	80-100	65-90	50-85	25-42	6-18
	17-28	Loam, silt loam, channery sandy loam	ML, SM, GM	A-4	0	2-25	55-90	45-80	40-75	35-60	20-35	NP-8
	28-33	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
MaB:												
Markland--------	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	12-43	Silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	43-80	Stratified silty clay to fine sand	CL-ML, CL, CH	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30
MaC:												
Markland--------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	7-38	Clay, silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	38-80	Silty clay, silty clay loam, fine sandy loam	CL-ML, CL, CH	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30
MaD2:												
Markland--------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	4-28	Silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	28-80	Silty clay, silty clay loam, fine sandy loam	CL-ML, CL, CH	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Mg:												
Melvin----------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	80-95	25-35	4-10
	7-30	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	80-95	25-40	5-20
	30-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	60-95	25-40	5-20
Mh:												
Melvin----------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	80-95	25-35	4-10
	7-29	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	80-95	25-40	5-20
	29-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	60-95	25-40	5-20
MnA:												
Mentor----------	0-10	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	10-50	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	50-80	Stratified silty clay loam to sandy loam	ML, CL, SM, SC	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15
MnB:												
Mentor----------	0-8	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	8-48	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	48-80	Stratified sandy loam to silty clay loam	ML, CL, SM, SC	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15
MnC:												
Mentor----------	0-7	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	7-40	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	40-80	Stratified fine sandy loam to silt loam	ML, CL, SM, SC	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MnD:												
Mentor----------	0-9	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	9-42	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	42-80	Stratified silt loam to sandy loam	ML, CL, SM, SC	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15
Ne:												
Newark----------	0-8	Silt loam	ML, CL, CL-ML	A-4	0	0	95-100	90-100	80-100	55-95	0-32	NP-10
	8-30	Silt loam, silty clay loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	22-42	3-20
	30-80	Silt loam, loam, silty clay loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0-3	75-100	70-100	65-100	55-95	22-42	3-20
Nf:												
Newark----------	0-10	Silt loam	ML, CL, CL-ML	A-4	0	0	95-100	90-100	80-100	55-95	0-32	NP-10
	10-32	Silt loam, silty clay loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-100	22-42	3-20
	32-80	Stratified fine sandy loam to silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0-3	75-100	70-100	65-100	55-95	22-42	3-20
Nn:												
Nolin-----------	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-100	25-40	5-18
	12-48	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	95-100	85-100	75-100	25-46	5-23
	48-80	Loam, sandy loam, silt loam	ML, CL, CL-ML, GM	A-4, A-6	0	0-10	50-100	50-100	40-95	35-95	0-30	NP-15
No:												
Nolin-----------	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-100	25-40	5-18
	10-44	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	95-100	85-100	75-100	25-46	5-23
	44-80	Loam, fine sandy loam, silt loam	ML, CL, CL-ML, GM	A-4, A-6	0	0-10	50-100	50-100	40-95	35-95	0-30	NP-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Or:												
Orrville--------	0-10	Silt loam	ML, CL-ML, CL	A-4	0	0	100	90-100	85-100	60-80	20-35	3-10
	10-48	Silt loam, loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0-2	95-100	75-100	70-95	50-90	20-40	2-16
	48-80	Stratified gravelly loamy sand to silt loam	ML, CL, SM, SC	A-4, A-2, A-1	0	0-2	95-100	65-100	40-85	15-75	15-35	NP-10
Pg:												
Pits, gravel.												
Ph:												
Pits, quarry.												
RcC:												
Richland--------	0-6	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0-10	90-100	80-95	70-95	50-90	16-35	3-20
	6-55	Loam, silty clay loam, channery clay loam	CL, SC, SM, ML	A-4, A-6, A-7	0	5-15	80-95	65-95	55-90	35-75	30-45	9-18
	55-80	Channery clay loam, very channery loam, silty clay loam	CL, GC, SM, GM	A-4, A-6, A-7	0	5-15	65-90	40-85	40-85	35-75	30-45	9-18
RcD:												
Richland--------	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0-10	90-100	80-95	70-95	50-90	16-35	3-20
	5-50	Loam, silty clay loam, channery clay loam	CL, SC, SM, ML	A-4, A-6, A-7	0	5-15	80-95	65-95	55-90	35-75	30-45	9-18
	50-80	Channery loam, very channery loam, silty clay loam	CL, GC, SM, GM	A-4, A-6, A-7	0	5-15	65-90	40-85	40-85	35-75	30-45	9-18

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
RgC:												
Rigley----------	0-6	Sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	6-46	Channery sandy loam, channery loam, sandy loam	SM, ML, GM, GM-GC	A-2, A-4, A-1	0	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	46-65	Channery sandy loam, channery loamy sand, channery clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	55-80	45-70	30-60	15-50	0-35	NP-15
RgD:												
Rigley----------	0-7	Sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	7-57	Channery sandy loam, channery loam, sandy loam	SM, ML, GM, GM-GC	A-2, A-4, A-1	0	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	57-70	Channery sandy loam, very channery loamy sand, channery clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	55-80	45-70	30-60	15-50	0-35	NP-15
	70-75	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
RgE:												
Rigley----------	0-5	Sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	5-52	Channery sandy loam, channery loam, sandy loam	SM, ML, GM, GM-GC	A-2, A-4, A-1	0	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	52-62	Channery sandy loam, channery loam, very channery sandy loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	55-80	45-70	30-60	15-50	0-35	NP-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
RhD:												
Rigley----------	0-6	Sandy loam	SM, ML	A-2, A-4	0	5-25	80-95	75-90	55-80	25-65	0-30	NP-7
	6-50	Channery sandy loam, very channery sandy loam, sandy loam	SM, ML, GM	A-1, A-2, A-4	0	5-15	65-95	60-90	40-75	20-60	0-30	NP-7
	50-80	Channery sandy loam, channery loam	GM, GC, SM, SC	A-1, A-2, A-4, A-6	0	10-25	55-80	45-70	30-60	15-50	0-35	NP-15
Se:												
Sebring---------	0-7	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	95-100	85-95	20-35	3-10
	7-48	Silty clay loam, silt loam	CL, ML	A-4, A-6, A-7	0	0	100	95-100	90-100	80-100	30-50	7-22
	48-80	Stratified silt loam to silty clay	ML, CL, CL-ML, SC	A-2, A-4, A-6, A-7	0	0	90-100	85-100	55-100	30-95	20-45	3-20
Th:												
Tioga-----------	0-11	Fine sandy loam	ML, SM	A-4	0	0	100	95-100	65-95	40-85	0-15	NP-4
	11-36	Silt loam, loam, fine sandy loam	SM, GM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	0-15	NP-2
	36-80	Fine sandy loam, loamy fine sand, sandy loam	GW-GM, GM, SM, ML	A-1, A-2, A-4, A-3	0	0-10	35-100	30-100	15-90	5-80	0-15	NP-2
Tk:												
Tioga-----------	0-9	Fine sandy loam	ML, SM	A-4	0	0	100	95-100	65-95	40-85	0-15	NP-4
	9-27	Silt loam, loam, gravelly fine sandy loam	SM, GM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	0-15	NP-2
	27-80	Silt loam, gravelly loam, loamy sand	GW-GM, GM, SM, ML	A-1, A-2, A-4, A-3	0	0-10	35-100	30-100	15-90	5-80	0-15	NP-2

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Tm:												
Tioga-----------	0-7	Fine sandy loam	ML, SM	A-4	0	0	100	95-100	65-95	40-85	0-15	NP-4
	7-36	Silt loam, loam, fine sandy loam	SM, GM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	0-15	NP-2
	36-80	Silt loam, gravelly loam, very gravelly loamy sand	GW-GM, GM, SM, ML	A-1, A-2, A-4, A-3	0	0-10	35-100	30-100	15-90	5-80	0-15	NP-2
To:												
Tioga-----------	0-11	Fine sandy loam	ML, SM	A-4	0	0	100	95-100	65-95	40-85	0-15	NP-4
	11-36	Silt loam, loam, fine sandy loam	SM, GM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	0-15	NP-2
	36-80	Fine sandy loam, gravelly loam, loamy fine sand	GW-GM, GM, SM, ML	A-1, A-2, A-4, A-3	0	0-10	35-100	30-100	15-90	5-80	0-15	NP-2
Urban land.												
TsB:												
Titusville------	0-9	Silt loam	ML, CL, CL-ML	A-4	0	0-1	95-100	95-100	80-95	75-90	20-35	2-10
	9-26	Silt loam, silty clay loam, clay loam	CL, ML	A-6, A-4, A-7	0	0-2	95-100	95-100	80-95	70-85	30-45	8-20
	26-42	Loam, clay loam, gravelly loam	CL, CL-ML	A-6, A-4	0	0-5	75-100	70-95	65-80	55-70	20-35	6-18
	42-70	Loam, silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	75-100	70-95	65-80	55-75	20-35	5-15
	70-80	Loam, clay loam, gravelly loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-5	60-100	50-95	45-80	35-70	20-35	4-15

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
TsC:												
Titusville------	0-7	Silt loam	ML, CL, CL-ML	A-4	0	0-1	95-100	95-100	80-95	75-90	20-35	2-10
	7-14	Loam, silt loam, clay loam	CL, ML	A-6, A-4, A-7	0	0-2	95-100	95-100	80-95	70-85	30-45	8-20
	14-24	Silt loam, clay loam, gravelly loam	CL, CL-ML	A-6, A-4	0	0-5	75-100	70-95	65-80	55-70	20-35	6-18
	24-40	Loam, silt loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-5	75-100	70-95	65-80	55-75	20-35	5-15
	40-80	Loam, clay loam, gravelly loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-5	60-100	50-95	45-80	35-70	20-35	4-15
Ug:												
Udorthents, loamy.												
Uh:												
Udorthents. loamy-skeletal.												
Up:												
Udorthents.												
Pits.												
WaA:												
Watertown-------	0-11	Sandy loam	SM	A-2, A-1-b, A-4	0	0	90-100	80-100	45-70	20-45	0-14	NP
	11-21	Sandy loam, coarse sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	70-100	50-100	30-65	15-45	0-14	NP
	21-30	Loamy coarse sand, gravelly loamy sand, loamy sand	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0	0	40-100	30-100	15-70	5-30	0-14	NP
	30-80	Sand, gravelly sand, gravelly coarse sand	SM, GM, GP-GM, SP-SM	A-1	0	0	40-100	20-100	10-50	5-25	0-14	NP

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
WaB:												
Watertown-------	0-10	Sandy loam	SM	A-2, A-1-b, A-4	0	0	90-100	80-100	45-70	20-45	0-14	NP
	10-20	Sandy loam, coarse sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	70-100	50-100	30-65	15-45	0-14	NP
	20-33	Very gravelly loamy coarse sand, gravelly loamy sand, loamy sand	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0	0	40-100	30-100	15-70	5-30	0-14	NP
	33-80	Sand, gravelly sand, gravelly coarse sand	SM, GM, GP-GM, SP-SM	A-1	0	0	40-100	20-100	10-50	5-25	0-14	NP
WaC:												
Watertown-------	0-9	Sandy loam	SM	A-2, A-1-b, A-4	0	0	90-100	80-100	45-70	20-45	0-14	NP
	9-18	Sandy loam, coarse sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	70-100	50-100	30-65	15-45	0-14	NP
	18-26	Very gravelly loamy coarse sand, gravelly loamy sand, loamy sand	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0	0	40-100	30-100	15-70	5-30	0-14	NP
	26-80	Sand, gravelly sand, gravelly coarse sand	SM, GM, GP-GM, SP-SM	A-1	0	0	40-100	20-100	10-50	5-25	0-14	NP
WaD:												
Watertown-------	0-6	Sandy loam	SM	A-2, A-1-b, A-4	0	0	90-100	80-100	45-70	20-45	0-14	NP
	6-16	Sandy loam, coarse sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	70-100	50-100	30-65	15-45	0-14	NP
	16-25	Gravelly sandy loam, gravelly loamy sand, loamy sand	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0	0	40-100	30-100	15-70	5-30	0-14	NP
	25-80	Sand, gravelly loamy sand, gravelly coarse sand	SM, GM, GP-GM, SP-SM	A-1	0	0	40-100	20-100	10-50	5-25	0-14	NP

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
WaF:												
Watertown-------	0-4	Sandy loam	SM	A-2, A-1-b, A-4	0	0	90-100	80-100	45-70	20-45	0-14	NP
	4-24	Sandy loam, coarse sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	70-100	50-100	30-65	15-45	0-14	NP
	24-40	Very gravelly loamy coarse sand, gravelly loamy sand, loamy sand	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0	0	40-100	30-100	15-70	5-30	0-14	NP
	40-80	Sand, extremely gravelly loamy sand, gravelly coarse sand	SM, GM, GP-GM, SP-SM	A-1	0	0	40-100	20-100	10-50	5-25	0-14	NP
Wb:												
Wappinger-------	0-8	Sandy loam	CL-ML, ML, CL	A-4	0	0	90-100	85-100	70-95	55-80	20-30	3-10
	8-26	Loam, fine sandy loam, silt loam	CL-ML, ML, SM, SC	A-4	0	0	90-100	85-100	60-95	35-80	20-30	3-10
	26-80	Coarse sand, gravelly loamy sand, gravelly sand	GW, GP, SW, SP	A-1, A-2, A-3	0	0-3	25-80	20-75	10-55	0-20	0-14	NP
WeC:												
Wellston--------	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	10-27	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	27-48	Silt loam, loam, channery loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	48-70	Very channery loam, clay loam, channery clay loam	SC-SM, SC, GM-GC, CL	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	70-72	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WhC:												
Westmoreland----	0-8	Silt loam	ML, CL	A-4, A-6	0	0	85-100	80-100	75-95	60-95	0-35	NP-10
	8-38	Silty clay loam, channery silty clay loam, silt loam	CL, ML, GM, GC	A-4, A-6, A-7	0	0-15	65-100	55-95	50-90	45-85	22-45	2-20
	38-48	Very channery loam, very channery silt loam, channery silty clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	25-95	20-95	15-90	15-80	20-40	2-20
	48-53	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
WhD:												
Westmoreland----	0-7	Silt loam	ML, CL	A-4, A-6	0	0	85-100	80-100	75-95	60-95	0-35	NP-10
	7-38	Silty clay loam, channery loam, silt loam	CL, ML, GM, GC	A-4, A-6, A-7	0	0-15	65-100	55-95	50-90	45-85	22-45	2-20
	38-55	Very channery loam, very channery silt loam, channery silty clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	25-95	20-95	15-90	15-80	20-40	2-20
	55-82	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
WhE:												
Westmoreland----	0-5	Silt loam	ML, CL	A-4, A-6	0	0	85-100	80-100	75-95	60-95	0-35	NP-10
	5-39	Silty clay loam, channery loam, channery silt loam	CL, ML, GM, GC	A-4, A-6, A-7	0	0-15	65-100	55-95	50-90	45-85	22-45	2-20
	39-60	Very channery loam, very channery silt loam, channery silty clay loam	GM, GC, SM, SC	A-2, A-1, A-4, A-6	0	0-20	25-95	20-95	15-90	15-80	20-40	2-20
	60-65	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 20.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WnA:												
Wheeling--------	0-10	Silt loam	ML, CL, SM, SC	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	10-48	Loam, sandy loam, gravelly sandy loam	ML, CL, SM, SC	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	48-80	Stratified loamy sand to very gravelly sand	GM, SM, GP, GW	A-1, A-2, A-3, A-4	0	10-20	35-90	20-75	10-65	4-45	0-20	NP-10
WnB:												
Wheeling--------	0-8	Silt loam	ML, CL, SM, SC	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	8-45	Loam, sandy loam, gravelly sandy loam	ML, CL, SM, SC	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	45-80	Stratified loamy sand to very gravelly sand	GM, SM, GP, GW	A-1, A-2, A-3, A-4	0	10-20	35-90	20-75	10-65	4-45	0-20	NP-10
Zp:												
Zipp------------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-95	35-50	15-25
	8-30	Silty clay	CL, CH	A-7	0	0	100	100	95-100	90-95	45-60	25-35
	30-80	Silty clay, clay loam, sandy clay loam	CL, CH	A-7	0	0	100	100	90-100	75-95	45-60	25-35

Table 21.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
AaB:												
Aaron-----------	0-8	10-27	1.20-1.40	0.60-2.00	0.19-0.23	Low	1.0-3.0	0.37	0.37	4	6	---
	8-43	35-60	1.30-1.60	0.06-0.20	0.14-0.18	High	---	0.28	0.28			
	43-53	35-60	1.35-1.65	0.06-0.20	0.10-0.14	High	---	0.28	0.28			
	53-58	---	---	0.00-0.20	---		---	---	---			
AaC2:												
Aaron-----------	0-5	10-27	1.20-1.40	0.60-2.00	0.19-0.23	Low	1.0-3.0	0.37	0.37	4	6	48
	5-45	35-60	1.30-1.60	0.06-0.20	0.14-0.18	High	---	0.28	0.28			
	45-53	35-60	1.35-1.65	0.06-0.20	0.10-0.14	High	---	0.28	0.28			
	53-58	---	---	0.00-0.20	---		---	---	---			
AfB:												
Alford----------	0-10	12-26	1.30-1.60	0.60-2.00	0.18-0.24	Low	0.5-3.0	0.43	0.43	5	5	56
	10-62	22-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate	0.0-1.0	0.49	0.49			
	62-80	12-22	1.30-1.45	0.60-2.00	0.18-0.22	Low	0.0-0.5	0.55	0.55			
AfC2:												
Alford----------	0-7	12-26	1.30-1.60	0.60-2.00	0.18-0.24	Low	0.5-3.0	0.43	0.43	5	5	56
	7-65	22-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate	0.0-1.0	0.49	0.49			
	65-80	12-22	1.30-1.45	0.60-2.00	0.18-0.22	Low	0.0-0.5	0.55	0.55			
BgB:												
Bethesda--------	0-8	18-27	1.35-1.50	0.60-2.00	0.15-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	8-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.1-0.5	0.32	0.64			
BgD:												
Bethesda--------	0-8	18-27	1.35-1.50	0.60-2.00	0.15-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	8-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.1-0.5	0.32	0.64			
BgE:												
Bethesda--------	0-6	18-27	1.35-1.50	0.60-2.00	0.15-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	6-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.1-0.5	0.32	0.64			
BhB:												
Bethesda--------	0-2	18-27	1.40-1.55	0.60-2.00	0.10-0.16	Low	0.0-0.5	0.28	0.49	5	8	---
	2-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.0-0.3	0.32	0.64			
BhD:												
Bethesda--------	0-4	18-27	1.40-1.55	0.60-2.00	0.10-0.16	Low	0.0-0.5	0.28	0.49	5	8	---
	4-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.0-0.3	0.32	0.64			
BhF:												
Bethesda--------	0-3	18-27	1.40-1.55	0.60-2.00	0.10-0.16	Low	0.0-0.5	0.28	0.49	5	8	---
	3-80	18-35	1.60-1.90	0.20-0.60	0.04-0.10	Low	0.0-0.3	0.32	0.64			
BrD:												
Brownsville-----	0-6	8-18	1.20-1.45	0.60-6.00	0.09-0.17	Low	1.0-3.0	0.20	0.43	4	8	---
	6-35	8-18	1.30-1.60	0.60-6.00	0.07-0.14	Low	0.3-1.0	0.17	0.55			
	35-60	8-18	1.30-1.60	2.00-6.00	0.03-0.12	Low	0.1-0.3	0.17	0.64			
	60-62	---	---	0.20-0.60	---		---	---	---			
BrE:												
Brownsville-----	0-6	8-18	1.20-1.45	0.60-6.00	0.09-0.17	Low	1.0-3.0	0.20	0.43	4	8	---
	6-38	8-18	1.30-1.60	0.60-6.00	0.07-0.14	Low	0.3-1.0	0.17	0.55			
	38-65	8-18	1.30-1.60	2.00-6.00	0.03-0.12	Low	0.1-0.3	0.17	0.64			
	65-70	---	---	0.20-0.60	---		---	---	---			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
BrF:												
Brownsville-----	0-6	8-18	1.20-1.45	0.60-6.00	0.09-0.17	Low	1.0-3.0	0.20	0.43	4	8	---
	6-30	8-18	1.30-1.60	0.60-6.00	0.07-0.14	Low	0.3-1.0	0.17	0.55			
	30-60	8-18	1.30-1.60	2.00-6.00	0.03-0.12	Low	0.1-0.3	0.17	0.64			
	60-65	---	---	0.20-0.60	---		---	---	---			
BtF:												
Brownsville-----	0-5	8-18	1.20-1.45	0.60-6.00	0.09-0.17	Low	1.0-3.0	0.20	0.43	4	8	---
	5-30	8-18	1.30-1.60	0.60-6.00	0.07-0.14	Low	0.3-1.0	0.17	0.55			
	30-60	8-18	1.30-1.60	2.00-6.00	0.03-0.12	Low	0.1-0.3	0.17	0.64			
	60-65	---	---	0.20-0.60	---		---	---	---			
Rock outcrop.												
CdA:												
Caneadea--------	0-8	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Moderate	2.0-4.0	0.43	0.43	4	6	48
	8-44	35-60	1.35-1.70	0.00-0.06	0.10-0.13	Moderate	0.5-1.0	0.32	0.32			
	44-80	35-55	1.45-1.75	0.00-0.06	0.10-0.14	Moderate	0.1-0.5	0.32	0.32			
CfA:												
Chili-----------	0-8	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	8-30	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	30-48	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	48-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CfB:												
Chili-----------	0-9	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	9-35	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	35-45	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	45-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CfC:												
Chili-----------	0-9	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	9-33	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	33-42	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	42-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CfD:												
Chili-----------	0-7	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	7-25	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	25-42	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	42-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CfE:												
Chili-----------	0-5	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	5-24	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	24-33	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	33-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CgA:												
Chili-----------	0-8	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	8-30	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	30-48	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	48-80	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
Urban land.												
CgB:												
Chili-----------	0-9	5-18	1.30-1.50	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.32	0.37	4	5	56
	9-35	18-27	1.30-1.55	2.00-6.00	0.09-0.16	Low	0.5-1.0	0.32	0.55			
	35-45	5-18	1.30-1.55	2.00-6.00	0.06-0.12	Low	0.2-0.5	0.17	0.37			
	45-85	1-10	1.25-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
CgB:												
Urban land.												
ChA:												
Cidermill-------	0-12	15-25	1.30-1.45	0.60-2.00	0.18-0.22	Low	1.0-3.0	0.37	0.37	4	5	56
	12-30	18-30	1.40-1.60	0.60-2.00	0.16-0.20	Low	0.3-1.0	0.37	0.37			
	30-43	15-30	1.30-1.60	2.00-6.00	0.12-0.18	Low	0.2-0.5	0.24	0.43			
	43-80	1-10	1.20-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
ChB:												
Cidermill-------	0-10	15-25	1.30-1.45	0.60-2.00	0.18-0.22	Low	1.0-3.0	0.37	0.37	4	5	56
	10-32	18-30	1.40-1.60	0.60-2.00	0.16-0.20	Low	0.3-1.0	0.37	0.37			
	32-50	15-30	1.30-1.60	2.00-6.00	0.12-0.18	Low	0.2-0.5	0.24	0.43			
	50-80	1-10	1.20-1.50	6.00-20.00	0.02-0.08	Low	0.1-0.3	0.10	0.32			
CkC:												
Clarksburg------	0-16	10-27	1.20-1.40	0.60-2.00	0.14-0.20	Low	1.0-3.0	0.37	0.37	4	5	56
	16-31	22-35	1.30-1.50	0.60-2.00	0.12-0.18	Moderate	0.0-0.5	0.28	0.28			
	31-43	22-35	1.40-1.70	0.06-0.60	0.06-0.12	Moderate	0.0-0.5	0.28	0.32			
	43-80	22-40	1.20-1.60	0.06-0.60	0.06-0.16	Moderate	0.0-0.5	0.28	0.32			
CkD:												
Clarksburg------	0-13	10-27	1.20-1.40	0.60-2.00	0.14-0.20	Low	1.0-3.0	0.37	0.37	4	5	56
	13-32	22-35	1.30-1.50	0.60-2.00	0.12-0.18	Moderate	0.0-0.5	0.28	0.28			
	32-65	22-35	1.40-1.70	0.06-0.60	0.06-0.12	Moderate	0.0-0.5	0.28	0.32			
	65-80	22-40	1.20-1.60	0.06-0.60	0.06-0.16	Moderate	0.0-0.5	0.28	0.32			
CoB:												
Coshocton-------	0-10	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	10-15	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	15-37	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	37-50	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	50-55	---	---	0.00-0.20	---		---	---	---			
CoC2:												
Coshocton-------	0-7	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	7-14	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	14-46	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	46-58	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	58-60	---	---	0.00-0.20	---		---	---	---			
CoD:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-12	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	12-45	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	45-58	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	58-60	---	---	0.00-0.20	---		---	---	---			
CoE:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-12	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	12-35	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	35-48	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	48-50	---	---	0.00-0.20	---		---	---	---			
CpC:												
Coshocton-------	0-5	15-23	1.30-1.50	0.60-2.00	0.16-0.22	Low	1.0-3.0	0.28	0.37	5	8	---
	5-46	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	46-80	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
CpD:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.16-0.22	Low	1.0-3.0	0.28	0.37	5	8	---
	6-46	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	46-80	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
CrD:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-12	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	12-45	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	45-58	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	58-60	---	---	0.00-0.20	---		---	---	---			
Rigley----------	0-10	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.24	4	3	86
	10-57	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.17	0.20			
	57-70	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.17	0.24			
CrE:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-21	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	21-35	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	35-48	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	48-60	---	---	0.00-0.20	---		---	---	---			
Rigley----------	0-5	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.24	4	3	86
	5-52	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.17	0.20			
	52-62	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.17	0.24			
CsD:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-12	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	12-45	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	45-58	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	58-60	---	---	0.00-0.20	---		---	---	---			
Westmoreland----	0-7	15-30	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-4.0	0.37	0.37	3	5	56
	7-38	20-35	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.0-0.5	0.28	0.32			
	38-55	18-35	1.20-1.50	0.60-2.00	0.06-0.10	Low	0.0-0.5	0.17	0.20			
	55-84	---	---	0.06-2.00	---		---	---	---			
CsE:												
Coshocton-------	0-6	15-23	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.43	4	5	56
	6-12	18-30	1.35-1.55	0.20-2.00	0.14-0.20	Moderate	0.3-1.0	0.37	0.43			
	12-35	24-35	1.40-1.65	0.06-0.60	0.10-0.17	Moderate	0.1-0.5	0.37	0.55			
	35-48	24-36	1.45-1.70	0.06-0.60	0.08-0.12	Moderate	0.1-0.3	0.28	0.55			
	48-53	---	---	0.00-0.20	---		---	---	---			
Westmoreland----	0-5	15-30	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-4.0	0.37	0.37	3	5	56
	5-39	20-35	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.0-0.5	0.28	0.32			
	39-60	18-35	1.20-1.50	0.60-2.00	0.06-0.10	Low	0.0-0.5	0.17	0.20			
	60-65	---	---	0.06-2.00	---		---	---	---			
DeC:												
Dekalb----------	0-5	10-20	1.20-1.50	6.00-20.00	0.08-0.12	Low	2.0-5.0	0.17	0.24	2	6	48
	5-24	7-18	1.20-1.50	6.00-20.00	0.06-0.12	Low	0.0-0.5	0.17	0.24			
	24-36	5-15	1.20-1.50	6.00-20.00	0.05-0.10	Low	0.0-0.5	0.17	0.24			
	36-38	---	---	2.00-6.00	---		---	---	---			
Ds:												
Dumps.												

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
EuA:												
Euclid----------	0-9	12-27	1.25-1.50	0.60-2.00	0.18-0.22	Low	2.0-3.0	0.37	0.37	5	5	56
	9-48	18-35	1.45-1.65	0.20-0.60	0.15-0.19	Low	0.5-1.0	0.37	0.37			
	48-80	15-32	1.45-1.60	0.20-0.60	0.14-0.18	Low	0.1-0.5	0.37	0.37			
FaB:												
Fairpoint-------	0-10	18-27	1.35-1.50	0.60-2.00	0.14-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	10-80	18-35	1.60-1.80	0.20-0.60	0.03-0.10	Moderate	0.1-0.5	0.32	0.64			
FaD:												
Fairpoint-------	0-10	18-27	1.35-1.50	0.60-2.00	0.14-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	10-80	18-35	1.60-1.80	0.20-0.60	0.03-0.10	Moderate	0.1-0.5	0.32	0.64			
FaE:												
Fairpoint-------	0-10	18-27	1.35-1.50	0.60-2.00	0.14-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	10-80	18-35	1.60-1.80	0.20-0.60	0.03-0.10	Moderate	0.1-0.5	0.32	0.64			
FeB:												
Farmerstown-----	0-4	18-27	1.35-1.50	0.60-2.00	0.15-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	4-30	18-35	1.50-1.90	0.06-0.60	0.04-0.12	Low	0.3-1.0	0.37	0.49			
	30-80	18-35	1.60-1.90	0.06-0.60	0.03-0.10	Low	0.1-0.3	0.32	0.64			
FeC:												
Farmerstown-----	0-6	18-27	1.35-1.50	0.60-2.00	0.15-0.20	Low	0.5-2.0	0.43	0.49	5	6	48
	6-32	18-35	1.50-1.90	0.06-0.60	0.04-0.12	Low	0.3-1.0	0.37	0.49			
	32-80	18-35	1.60-1.90	0.06-0.60	0.03-0.10	Low	0.1-0.3	0.32	0.64			
FhA:												
Fitchville------	0-9	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low	2.0-3.0	0.37	0.37	5	6	48
	9-40	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	40-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low	0.1-0.5	0.37	0.37			
FhB:												
Fitchville------	0-7	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low	2.0-3.0	0.37	0.37	5	6	48
	7-38	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	38-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low	0.1-0.5	0.37	0.37			
GdB:												
Germano---------	0-8	5-15	1.20-1.40	2.00-6.00	0.13-0.15	Low	0.5-3.0	0.24	0.28	3	3	86
	8-24	8-18	1.30-1.60	2.00-6.00	0.07-0.15	Low	0.2-1.0	0.17	0.32			
	24-32	5-15	1.20-1.40	2.00-6.00	0.05-0.10	Low	---	0.15	0.32			
	32-37	---	---		---		---	---	---			
GdC2:												
Germano---------	0-10	5-15	1.20-1.40	2.00-6.00	0.13-0.15	Low	0.5-3.0	0.24	0.28	3	3	86
	10-20	8-18	1.30-1.60	2.00-6.00	0.07-0.15	Low	0.2-1.0	0.17	0.32			
	20-24	5-15	1.20-1.40	2.00-6.00	0.05-0.10	Low	---	0.15	0.32			
	24-29	---	---		---		---	---	---			
GhB:												
Gilpin----------	0-6	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low	0.5-4.0	0.32	0.32	3	8	---
	6-18	18-35	1.20-1.50	0.60-2.00	0.12-0.16	Low	---	0.24	0.28			
	18-24	15-35	1.20-1.50	0.60-2.00	0.08-0.12	Low	---	0.24	0.32			
	24-26	---	---	0.20-2.00	---		---	---	---			
GhC:												
Gilpin----------	0-5	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low	0.5-4.0	0.32	0.32	3	8	---
	5-23	18-35	1.20-1.50	0.60-2.00	0.12-0.16	Low	---	0.24	0.28			
	23-32	15-35	1.20-1.50	0.60-2.00	0.08-0.12	Low	---	0.24	0.32			
	32-37	---	---	0.20-2.00	---		---	---	---			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
GhD:												
Gilpin----------	0-6	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low	0.5-4.0	0.32	0.32	3	8	---
	6-20	18-35	1.20-1.50	0.60-2.00	0.12-0.16	Low	---	0.24	0.28			
	20-36	15-35	1.20-1.50	0.60-2.00	0.08-0.12	Low	---	0.24	0.32			
	36-41	---	---	0.20-2.00	---		---	---	---			
GnA:												
Glenford--------	0-9	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	9-24	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	0.5-1.0	0.43	0.43			
	24-35	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	0.3-0.5	0.43	0.43			
	35-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low	0.1-0.3	0.37	0.37			
GnB:												
Glenford--------	0-11	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	11-21	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	0.5-1.0	0.43	0.43			
	21-54	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	0.3-0.5	0.43	0.43			
	54-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low	0.1-0.3	0.37	0.37			
GnC:												
Glenford--------	0-8	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	8-28	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	0.5-1.0	0.43	0.43			
	28-40	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	0.3-0.5	0.43	0.43			
	40-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low	0.1-0.3	0.37	0.37			
GpA:												
Glenford--------	0-8	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	8-29	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	0.5-1.0	0.43	0.43			
	29-48	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	0.3-0.5	0.43	0.43			
	48-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low	0.1-0.3	0.37	0.37			
GuC:												
Guernsey--------	0-7	13-27	1.30-1.50	0.60-2.00	0.19-0.24	Low	1.0-3.0	0.43	0.49	5	6	48
	7-23	22-38	1.35-1.55	0.20-2.00	0.15-0.21	Moderate	0.3-1.0	0.43	0.49			
	23-46	35-60	1.40-1.60	0.06-0.60	0.10-0.15	High	0.1-0.5	0.32	0.43			
	46-80	35-60	1.40-1.60	0.06-0.60	0.06-0.10	High	0.1-0.3	0.32	0.49			
GuD:												
Guernsey--------	0-9	13-27	1.30-1.50	0.60-2.00	0.19-0.24	Low	1.0-3.0	0.43	0.49	5	6	48
	9-21	22-38	1.35-1.55	0.20-2.00	0.15-0.21	Moderate	0.3-1.0	0.43	0.49			
	21-53	35-60	1.40-1.60	0.06-0.60	0.10-0.15	High	0.1-0.5	0.32	0.43			
	53-80	35-60	1.40-1.60	0.06-0.60	0.06-0.10	High	0.1-0.3	0.32	0.49			
HaD:												
Hazleton--------	0-8	7-18	1.20-1.40	2.00-6.00	0.10-0.14	Low	2.0-4.0	0.17	0.17	5	6	48
	8-40	7-18	1.20-1.40	2.00-20.00	0.08-0.12	Low	0.0-0.5	0.15	0.20			
	40-55	5-15	1.20-1.40	2.00-20.00	0.06-0.12	Low	0.0-0.5	0.15	0.20			
	55-57	---	---	2.00-6.00	---		---	---	---			
HaE:												
Hazleton--------	0-3	7-18	1.20-1.40	2.00-6.00	0.10-0.14	Low	2.0-4.0	0.17	0.17	5	6	48
	3-42	7-18	1.20-1.40	2.00-20.00	0.08-0.12	Low	0.0-0.5	0.15	0.20			
	42-62	5-15	1.20-1.40	2.00-20.00	0.06-0.12	Low	0.0-0.5	0.15	0.20			
	62-64	---	---	2.00-6.00	---		---	---	---			
HaF:												
Hazleton--------	0-3	7-18	1.20-1.40	2.00-6.00	0.10-0.14	Low	2.0-4.0	0.17	0.17	5	6	48
	3-41	7-18	1.20-1.40	2.00-20.00	0.08-0.12	Low	0.0-0.5	0.15	0.20			
	41-60	5-15	1.20-1.40	2.00-20.00	0.06-0.12	Low	0.0-0.5	0.15	0.20			
	60-65	---	---	2.00-6.00	---		---	---	---			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
HeF:												
Hazleton--------	0-4	7-18	1.20-1.40	2.00-6.00	0.10-0.16	Low	2.0-4.0	0.15	0.17	5	8	---
	4-35	7-18	1.20-1.40	2.00-20.00	0.08-0.12	Low	0.0-0.5	0.15	0.20			
	35-50	5-15	1.20-1.40	2.00-20.00	0.06-0.12	Low	0.0-0.5	0.15	0.20			
	50-55	---	---	2.00-6.00	---		0.0-0.5	---	---			
HoB:												
Homewood--------	0-9	13-25	1.30-1.50	0.60-2.00	0.20-0.23	Low	1.0-3.0	0.37	0.37	4	5	56
	9-27	24-32	1.40-1.70	0.60-2.00	0.15-0.20	Moderate	0.3-1.0	0.37	0.43			
	27-56	24-32	1.60-1.90	0.06-0.20	0.06-0.10	Moderate	0.2-0.5	0.37	0.55			
	56-80	16-30	1.55-1.85	0.06-0.20	0.06-0.10	Low	0.1-0.3	0.37	0.55			
HoC:												
Homewood--------	0-8	13-25	1.30-1.50	0.60-2.00	0.20-0.23	Low	1.0-3.0	0.37	0.37	4	5	56
	8-28	24-32	1.40-1.70	0.60-2.00	0.15-0.20	Moderate	0.3-1.0	0.37	0.43			
	28-65	24-32	1.60-1.90	0.06-0.20	0.06-0.10	Moderate	0.2-0.5	0.37	0.55			
	65-80	16-30	1.55-1.85	0.06-0.20	0.06-0.10	Low	0.1-0.3	0.37	0.55			
Ht:												
Huntington------	0-20	18-30	1.10-1.30	0.60-2.00	0.18-0.24	Low	3.0-6.0	0.28	0.28	5	---	---
	20-42	18-30	1.30-1.50	0.60-2.00	0.16-0.22	Low	---	0.32	0.32			
	42-80	15-30	1.30-1.50	0.60-2.00	0.10-0.16	Low	---	0.28	0.32			
JmA:												
Jimtown---------	0-13	10-24	1.30-1.50	0.60-2.00	0.18-0.22	Low	2.0-3.0	0.32	0.37	5	5	56
	13-28	18-27	1.25-1.60	0.60-2.00	0.10-0.18	Low	0.5-1.0	0.32	0.43			
	28-43	8-20	1.25-1.60	0.60-6.00	0.07-0.11	Low	0.2-0.5	0.24	0.55			
	43-80	4-16	1.25-1.65	2.00-6.00	0.04-0.10	Low	0.1-0.3	0.10	0.24			
KeB:												
Keene-----------	0-9	12-25	1.30-1.45	0.60-2.00	0.21-0.24	Low	1.0-3.0	0.43	0.43	5	5	56
	9-20	18-33	1.30-1.55	0.20-2.00	0.18-0.22	Moderate	0.3-1.0	0.37	0.37			
	20-39	30-45	1.40-1.60	0.06-0.60	0.10-0.15	Moderate	0.1-0.5	0.37	0.43			
	39-52	27-53	1.40-1.60	0.06-0.60	0.08-0.13	Moderate	0.1-0.3	0.37	0.55			
	52-57	---	---	0.00-0.20	---		---	---	---			
KeC:												
Keene-----------	0-7	12-25	1.30-1.45	0.60-2.00	0.21-0.24	Low	1.0-3.0	0.43	0.43	5	5	56
	7-13	18-33	1.30-1.55	0.20-2.00	0.18-0.22	Moderate	0.3-1.0	0.37	0.37			
	13-40	30-45	1.40-1.60	0.06-0.60	0.10-0.15	Moderate	0.1-0.5	0.37	0.43			
	40-55	27-53	1.40-1.60	0.06-0.60	0.08-0.13	Moderate	0.1-0.3	0.37	0.55			
	55-60	---	---	0.00-0.20	---		---	---	---			
La:												
Landes----------	0-10	7-20	1.40-1.60	2.00-6.00	0.13-0.20	Low	1.0-2.0	0.24	0.24	4	3	86
	10-38	5-18	1.60-1.70	2.00-6.00	0.10-0.15	Low	0.0-2.0	0.32	0.32			
	38-80	5-18	1.60-1.80	6.00-20.00	0.05-0.15	Low	0.0-2.0	0.20	0.20			
Lb:												
Landes----------	0-18	10-22	1.20-1.40	0.60-6.00	0.20-0.22	Low	1.0-2.0	0.32	0.32	4	5	56
	18-34	5-18	1.60-1.70	2.00-6.00	0.10-0.15	Low	0.0-2.0	0.32	0.32			
	34-80	5-18	1.60-1.80	6.00-20.00	0.05-0.15	Low	0.0-2.0	0.20	0.20			
Lo:												
Lobdell---------	0-9	15-27	1.20-1.40	0.60-2.00	0.20-0.24	Low	1.0-3.0	0.37	0.37	5	5	56
	9-47	18-30	1.25-1.60	0.60-2.00	0.17-0.22	Low	0.5-1.0	0.37	0.43			
	47-80	15-30	1.20-1.60	0.60-6.00	0.12-0.18	Low	0.1-0.5	0.37	0.43			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
LrB:												
Loudon	0-10	15-27	1.30-1.50	0.60-2.00	0.22-0.24	Low	1.0-3.0	0.43	0.43	5	6	48
	10-18	25-40	1.30-1.60	0.20-0.60	0.18-0.22	Moderate	0.3-1.0	0.43	0.43			
	18-50	35-60	1.40-1.65	0.06-0.20	0.10-0.18	Moderate	0.1-0.5	0.32	0.37			
	50-65	35-65	1.40-1.75	0.06-0.20	0.08-0.16	Moderate	0.1-0.3	0.32	0.37			
	65-70	---	---	0.06-0.20	---		---	---	---			
LrC:												
Loudon	0-8	15-27	1.30-1.50	0.60-2.00	0.22-0.24	Low	1.0-3.0	0.43	0.43	5	6	48
	8-15	25-40	1.30-1.60	0.20-0.60	0.18-0.22	Moderate	0.3-1.0	0.43	0.43			
	15-40	35-60	1.40-1.65	0.06-0.20	0.10-0.18	Moderate	0.1-0.5	0.32	0.37			
	40-80	35-65	1.40-1.75	0.06-0.20	0.08-0.16	Moderate	0.1-0.3	0.32	0.37			
LvC:												
Loudonville	0-9	13-22	1.30-1.50	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.32	0.37	2	5	56
	9-25	20-34	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.3-1.0	0.32	0.37			
	25-32	12-27	1.30-1.50	0.60-2.00	0.08-0.14	Low	0.1-0.3	0.32	0.64			
	32-34	---	---	0.00-2.00	---		---	---	---			
LvD:												
Loudonville	0-8	13-22	1.30-1.50	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.32	0.37	2	5	56
	8-17	20-34	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.3-1.0	0.32	0.37			
	17-28	12-27	1.30-1.50	0.60-2.00	0.08-0.14	Low	0.1-0.3	0.32	0.64			
	28-33	---	---	0.00-2.00	---		---	---	---			
MaB:												
Markland	0-12	20-27	1.30-1.55	0.60-2.00	0.18-0.24	Low	1.0-5.0	0.49	0.49	4	6	48
	12-43	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High	0.5-1.0	0.32	0.32			
	43-80	20-50	1.50-1.65	0.06-0.20	0.12-0.22	Moderate	0.5-1.0	0.43	0.43			
MaC:												
Markland	0-7	20-27	1.30-1.55	0.60-2.00	0.18-0.24	Low	1.0-5.0	0.49	0.49	4	6	48
	7-38	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High	0.5-1.0	0.32	0.32			
	38-80	20-50	1.50-1.65	0.06-0.20	0.12-0.22	Moderate	0.5-1.0	0.43	0.43			
MaD2:												
Markland	0-4	20-27	1.30-1.55	0.60-2.00	0.18-0.24	Low	1.0-5.0	0.49	0.49	4	6	48
	4-28	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High	0.5-1.0	0.32	0.32			
	28-80	20-50	1.50-1.65	0.06-0.20	0.12-0.22	Moderate	0.5-1.0	0.43	0.43			
Mg:												
Melvin	0-7	12-17	1.20-1.60	0.60-2.00	0.18-0.23	Low	0.5-3.0	0.43	0.43	5	5	56
	7-30	12-35	1.30-1.60	0.60-2.00	0.18-0.23	Low	---	0.43	0.43			
	30-80	7-35	1.40-1.70	0.60-2.00	0.16-0.23	Low	---	0.43	0.43			
Mh:												
Melvin	0-7	12-17	1.20-1.60	0.60-2.00	0.18-0.23	Low	0.5-3.0	0.43	0.43	5	5	56
	7-29	12-35	1.30-1.60	0.60-2.00	0.18-0.23	Low	0.5-2.0	0.43	0.43			
	29-80	7-35	1.40-1.70	0.60-2.00	0.16-0.23	Low	0.2-1.0	0.43	0.43			
MnA:												
Mentor	0-10	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low	1.0-3.0	0.37	0.37	5	5	56
	10-50	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low	0.2-0.5	0.37	0.37			
	50-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.1-0.3	0.37	0.37			
MnB:												
Mentor	0-8	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low	1.0-3.0	0.37	0.37	5	5	56
	8-48	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low	0.2-0.5	0.37	0.37			
	48-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.1-0.3	0.37	0.37			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
MnC:												
Mentor----------	0-7	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low	1.0-3.0	0.37	0.37	5	5	56
	7-40	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low	0.2-0.5	0.37	0.37			
	40-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.1-0.3	0.37	0.37			
MnD:												
Mentor----------	0-9	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low	1.0-3.0	0.37	0.37	5	5	56
	9-42	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low	0.2-0.5	0.37	0.37			
	42-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.1-0.3	0.37	0.37			
Ne:												
Newark----------	0-8	7-27	1.20-1.40	0.60-2.00	0.15-0.23	Low	1.0-4.0	0.43	0.43	5	5	56
	8-30	18-35	1.20-1.45	0.60-2.00	0.18-0.23	Low	---	0.43	0.43			
	30-80	12-40	1.30-1.50	0.60-2.00	0.15-0.22	Low	---	0.43	0.43			
Nf:												
Newark----------	0-10	7-27	1.20-1.40	0.60-2.00	0.15-0.23	Low	1.0-4.0	0.43	0.43	5	5	56
	10-32	18-35	1.20-1.45	0.60-2.00	0.18-0.23	Low	---	0.43	0.43			
	32-80	12-40	1.30-1.50	0.60-2.00	0.15-0.22	Low	---	0.43	0.43			
Nn:												
Nolin-----------	0-12	12-35	1.20-1.40	0.60-2.00	0.18-0.23	Low	2.0-4.0	0.43	0.43	5	5	56
	12-48	18-35	1.25-1.50	0.60-2.00	0.18-0.23	Low	0.3-2.0	0.43	0.43			
	48-80	10-30	1.30-1.55	0.60-6.00	0.10-0.23	Low	0.3-2.0	0.43	0.43			
No:												
Nolin-----------	0-10	12-35	1.20-1.40	0.60-2.00	0.18-0.23	Low	2.0-4.0	0.43	0.43	5	5	56
	10-44	18-35	1.25-1.50	0.60-2.00	0.18-0.23	Low	0.3-2.0	0.43	0.43			
	44-80	10-30	1.30-1.55	0.60-6.00	0.10-0.23	Low	0.3-2.0	0.43	0.43			
Or:												
Orrville--------	0-10	12-27	1.25-1.45	0.60-2.00	0.18-0.22	Low	2.0-4.0	0.37	0.37	5	6	48
	10-48	18-30	1.30-1.50	0.60-2.00	0.15-0.19	Low	0.5-1.0	0.37	0.43			
	48-80	10-25	1.20-1.40	0.60-6.00	0.08-0.15	Low	0.1-0.3	0.37	0.49			
Pg:												
Pits, gravel.												
Ph:												
Pits, quarry.												
RcC:												
Richland--------	0-6	15-27	1.30-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.43	5	6	48
	6-55	18-35	1.40-1.60	0.60-2.00	0.10-0.16	Moderate	0.3-1.0	0.28	0.43			
	55-80	18-35	1.40-1.60	0.60-2.00	0.07-0.11	Moderate	0.1-0.3	0.28	0.55			
RcD:												
Richland--------	0-5	15-27	1.30-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.43	5	6	48
	5-50	18-35	1.40-1.60	0.60-2.00	0.10-0.16	Moderate	0.3-1.0	0.28	0.43			
	50-80	18-35	1.40-1.60	0.60-2.00	0.07-0.11	Moderate	0.1-0.3	0.28	0.55			
RgC:												
Rigley----------	0-6	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.24	4	3	86
	6-46	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.17	0.20			
	46-65	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.17	0.24			
RgD:												
Rigley----------	0-7	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.24	4	3	86
	7-57	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.17	0.20			
	57-70	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.17	0.24			
	70-75	---	---		---		---	---	---			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
RgE:												
Rigley----------	0-5	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.24	4	3	86
	5-52	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.17	0.20			
	52-62	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.17	0.24			
RhD:												
Rigley----------	0-6	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low	0.5-3.0	0.24	0.28	4	8	---
	6-50	7-18	1.30-1.60	2.00-6.00	0.09-0.15	Low	---	0.24	0.24			
	50-80	7-40	1.30-1.60	2.00-6.00	0.07-0.15	Low	---	0.24	0.24			
Se:												
Sebring---------	0-7	18-27	1.30-1.45	0.60-2.00	0.18-0.22	Low	3.0-5.0	0.37	0.37	5	6	48
	7-48	22-35	1.45-1.65	0.20-0.60	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	48-80	15-30	1.40-1.60	0.20-2.00	0.12-0.16	Moderate	0.1-0.3	0.37	0.37			
Th:												
Tioga-----------	0-11	5-18	1.15-1.40	0.60-6.00	0.15-0.21	Low	2.0-6.0	0.37	0.37	5	5	56
	11-36	5-18	1.15-1.45	0.60-6.00	0.07-0.20	Low	0.0-1.0	0.28	0.32			
	36-80	3-15	1.25-1.55	0.60-20.00	0.02-0.20	Low	0.0-1.0	0.28	0.32			
Tk:												
Tioga-----------	0-9	5-18	1.15-1.40	0.60-6.00	0.15-0.21	Low	2.0-6.0	0.37	0.37	5	5	56
	9-27	5-18	1.15-1.45	0.60-6.00	0.07-0.20	Low	0.0-1.0	0.28	0.32			
	27-80	3-15	1.25-1.55	0.60-20.00	0.02-0.20	Low	0.0-1.0	0.28	0.32			
Tm:												
Tioga-----------	0-7	5-18	1.15-1.40	0.60-6.00	0.15-0.21	Low	2.0-6.0	0.37	0.37	5	5	56
	7-36	5-18	1.15-1.45	0.60-6.00	0.07-0.20	Low	0.0-1.0	0.28	0.32			
	36-80	3-15	1.25-1.55	0.60-20.00	0.02-0.20	Low	0.0-1.0	0.28	0.32			
To:												
Tioga-----------	0-11	5-18	1.15-1.40	0.60-6.00	0.15-0.21	Low	2.0-6.0	0.37	0.37	5	5	56
	11-36	5-18	1.15-1.45	0.60-6.00	0.07-0.20	Low	0.0-1.0	0.28	0.32			
	36-80	3-15	1.25-1.55	0.60-20.00	0.02-0.20	Low	0.0-1.0	0.28	0.32			
Urban land.												
TsB:												
Titusville------	0-9	13-25	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.37	3	5	56
	9-26	20-35	1.40-1.70	0.20-0.60	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	26-42	20-30	1.60-1.88	0.06-0.20	0.06-0.10	Moderate	0.3-0.5	0.37	0.49			
	42-70	18-27	1.55-1.82	0.20-0.60	0.06-0.10	Low	0.2-0.5	0.37	0.49			
	70-80	20-28	1.55-1.82	0.20-2.00	0.06-0.10	Low	0.1-0.3	0.37	0.55			
TsC:												
Titusville------	0-7	13-25	1.30-1.50	0.60-2.00	0.18-0.23	Low	1.0-3.0	0.37	0.37	3	5	56
	7-14	20-35	1.40-1.70	0.20-0.60	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	14-24	20-30	1.60-1.88	0.06-0.20	0.06-0.10	Moderate	0.3-0.5	0.37	0.49			
	24-40	18-27	1.55-1.82	0.20-0.60	0.06-0.10	Low	0.2-0.5	0.37	0.49			
	40-80	20-28	1.55-1.82	0.20-2.00	0.06-0.10	Low	0.1-0.3	0.37	0.55			
Ug:												
Udorthents, loamy.												
Uh:												
Udorthents, loamy-skeletal.												
Up:												
Udorthents.												
Pits.												

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
WaA:												
Watertown-------	0-11	5-15	1.20-1.60	2.00-6.00	0.10-0.14	Low	0.5-2.0	0.17	0.20	4	3	86
	11-21	6-18	1.30-1.60	2.00-6.00	0.05-0.11	Low	0.3-1.0	0.10	0.15			
	21-30	2-10	1.30-1.60	6.00-20.00	0.04-0.06	Low	0.2-0.5	0.10	0.20			
	30-80	0-5	1.40-1.70	6.00-20.00	0.03-0.06	Low	0.1-0.3	0.10	0.20			
WaB:												
Watertown-------	0-10	5-15	1.20-1.60	2.00-6.00	0.10-0.14	Low	0.5-2.0	0.17	0.20	4	3	86
	10-20	6-18	1.30-1.60	2.00-6.00	0.05-0.11	Low	0.3-1.0	0.10	0.15			
	20-33	2-10	1.30-1.60	6.00-20.00	0.04-0.06	Low	0.2-0.5	0.10	0.20			
	33-80	0-5	1.40-1.70	6.00-20.00	0.03-0.06	Low	0.1-0.3	0.10	0.20			
WaC:												
Watertown-------	0-9	5-15	1.20-1.60	2.00-6.00	0.10-0.14	Low	0.5-2.0	0.17	0.20	4	3	86
	9-18	6-18	1.30-1.60	2.00-6.00	0.05-0.11	Low	0.3-1.0	0.10	0.15			
	18-26	2-10	1.30-1.60	6.00-20.00	0.04-0.06	Low	0.2-0.5	0.10	0.20			
	26-80	0-5	1.40-1.70	6.00-20.00	0.03-0.06	Low	0.1-0.3	0.10	0.20			
WaD:												
Watertown-------	0-6	5-15	1.20-1.60	2.00-6.00	0.10-0.14	Low	0.5-2.0	0.17	0.20	4	3	86
	6-16	6-18	1.30-1.60	2.00-6.00	0.05-0.11	Low	0.3-1.0	0.10	0.15			
	16-25	2-10	1.30-1.60	6.00-20.00	0.04-0.06	Low	0.2-0.5	0.10	0.20			
	25-80	0-5	1.40-1.70	6.00-20.00	0.03-0.06	Low	0.1-0.3	0.10	0.20			
WaF:												
Watertown-------	0-4	5-15	1.20-1.60	2.00-6.00	0.10-0.14	Low	0.5-2.0	0.17	0.20	4	3	86
	4-24	6-18	1.30-1.60	2.00-6.00	0.05-0.11	Low	0.3-1.0	0.10	0.15			
	24-40	2-10	1.30-1.60	6.00-20.00	0.04-0.06	Low	0.2-0.5	0.10	0.20			
	40-80	0-5	1.40-1.70	6.00-20.00	0.03-0.06	Low	0.1-0.3	0.10	0.20			
Wb:												
Wappinger-------	0-8	5-18	1.15-1.40	0.60-2.00	0.14-0.21	Low	2.0-6.0	0.49	0.49	4	5	56
	8-26	5-18	1.15-1.45	0.60-2.00	0.11-0.17	Low	---	0.49	0.49			
	26-80	1-8	1.25-1.55	2.00-20.00	0.01-0.11	Low	---	0.17	0.24			
WeC:												
Wellston--------	0-10	13-27	1.30-1.50	0.60-2.00	0.18-0.22	Low	1.0-3.0	0.37	0.37	3	6	48
	10-27	18-35	1.30-1.65	0.60-2.00	0.17-0.21	Low	0.3-1.0	0.37	0.43			
	27-48	15-30	1.30-1.60	0.60-2.00	0.12-0.17	Low	0.1-0.5	0.37	0.55			
	48-70	15-30	1.30-1.60	0.60-2.00	0.06-0.16	Low	0.1-0.3	0.20	0.43			
	70-72	---	---	0.20-2.00	---		---	---	---			
WhC:												
Westmoreland----	0-8	15-30	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-4.0	0.37	0.37	3	5	56
	8-38	20-35	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.0-0.5	0.28	0.32			
	38-48	18-35	1.20-1.50	0.60-2.00	0.06-0.10	Low	0.0-0.5	0.17	0.20			
	48-53	---	---	0.06-2.00	---		---	---	---			
WhD:												
Westmoreland----	0-7	15-30	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-4.0	0.37	0.37	3	5	56
	7-38	20-35	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.0-0.5	0.28	0.32			
	38-55	18-35	1.20-1.50	0.60-2.00	0.06-0.10	Low	0.0-0.5	0.17	0.20			
	55-82	---	---	0.06-2.00	---		---	---	---			
WhE:												
Westmoreland----	0-5	15-30	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-4.0	0.37	0.37	3	5	56
	5-39	20-35	1.20-1.50	0.60-2.00	0.12-0.18	Low	0.0-0.5	0.28	0.32			
	39-60	18-35	1.20-1.50	0.60-2.00	0.06-0.10	Low	0.0-0.5	0.17	0.20			
	60-65	---	---	0.06-2.00	---		---	---	---			

Table 21.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
WnA:												
Wheeling--------	0-10	12-20	1.20-1.40	0.60-6.00	0.12-0.18	Low	1.0-3.0	0.37	0.37	5	---	---
	10-48	18-30	1.30-1.50	0.60-2.00	0.08-0.16	Low	---	0.32	0.32			
	48-80	8-15	1.30-1.50	6.00-20.00	0.04-0.08	Low	---	0.20	0.28			
WnB:												
Wheeling--------	0-8	12-20	1.20-1.40	0.60-6.00	0.12-0.18	Low	1.0-3.0	0.37	0.37	5	---	---
	8-45	18-30	1.30-1.50	0.60-2.00	0.08-0.16	Low	---	0.32	0.32			
	45-80	8-15	1.30-1.50	6.00-20.00	0.04-0.08	Low	---	0.20	0.28			
Zp:												
Zipp------------	0-8	27-40	1.40-1.60	0.20-0.60	0.20-0.22	Moderate	1.0-3.0	0.28	0.28	5	7	38
	8-30	40-55	1.45-1.65	0.06-0.20	0.11-0.13	High	0.5-1.0	0.28	0.28			
	30-80	40-55	1.50-1.70	0.00-0.20	0.08-0.10	High	0.2-1.0	0.28	0.28			

Table 22.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not available or were not estimated.)

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
AaB:					
Aaron-----------	0-8	10-27	---	4.5-7.8	---
	8-43	35-60	---	5.1-7.8	---
	43-53	35-60	---	5.1-7.8	---
	53-58	---	---	---	---
AaC2:					
Aaron-----------	0-5	10-27	---	4.5-7.8	---
	5-45	35-60	---	5.1-7.8	---
	45-53	35-60	---	5.1-7.8	---
	53-58	---	---	---	---
AfB:					
Alford----------	0-10	12-26	5.0-18.0	4.5-7.3	---
	10-62	22-32	5.0-16.0	4.5-5.5	---
	62-80	12-22	4.0-12.0	4.5-6.5	---
AfC2:					
Alford----------	0-7	12-26	5.0-18.0	4.5-7.3	---
	7-65	22-32	5.0-16.0	4.5-5.5	---
	65-80	12-22	4.0-12.0	4.5-6.5	---
BgB:					
Bethesda--------	0-8	18-27	7.0-15.0	4.5-6.0	---
	8-80	18-35	7.0-21.0	3.6-5.5	---
BgD:					
Bethesda--------	0-8	18-27	7.0-15.0	4.5-6.0	---
	8-80	18-35	7.0-21.0	3.6-5.5	---
BgE:					
Bethesda--------	0-6	18-27	7.0-15.0	4.5-6.0	---
	6-80	18-35	7.0-21.0	3.6-5.5	---
BhB:					
Bethesda--------	0-2	18-27	7.0-16.0	3.6-5.5	---
	2-80	18-35	7.0-20.0	3.6-5.5	---
BhD:					
Bethesda--------	0-4	18-27	7.0-16.0	3.6-5.5	---
	4-80	18-35	7.0-20.0	3.6-5.5	---
BhF:					
Bethesda--------	0-3	18-27	7.0-16.0	3.6-5.5	---
	3-80	18-35	7.0-20.0	3.6-5.5	---
BrD:					
Brownsville-----	0-6	8-18	8.0-20.0	3.6-6.5	---
	6-35	8-18	4.0-10.0	3.6-5.5	---
	35-60	8-18	4.0-10.0	3.6-6.0	---
	60-62	---	---	---	---
BrE:					
Brownsville-----	0-6	8-18	8.0-20.0	3.6-6.5	---
	6-38	8-18	4.0-10.0	3.6-5.5	---
	38-65	8-18	4.0-10.0	3.6-6.0	---
	65-70	---	---	---	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
BrF:					
Brownsville-----	0-6	8-18	8.0-20.0	3.6-6.5	---
	6-30	8-18	4.0-10.0	3.6-5.5	---
	30-60	8-18	4.0-10.0	3.6-6.0	---
	60-65	---	---	---	---
BtF:					
Brownsville-----	0-5	8-18	8.0-20.0	3.6-6.5	---
	5-30	8-18	4.0-10.0	3.6-5.5	---
	30-60	8-18	4.0-10.0	3.6-6.0	---
	60-65	---	---	---	---
Rock outcrop.					
CdA:					
Caneadea--------	0-8	20-27	14.0-22.0	4.5-7.3	---
	8-44	35-60	16.0-30.0	4.5-7.8	---
	44-80	35-55	16.0-28.0	7.4-8.4	5-15
CfA:					
Chili-----------	0-8	5-18	8.0-16.0	4.5-7.3	---
	8-30	18-27	8.0-16.0	4.5-6.5	---
	30-48	5-18	6.0-16.0	5.1-6.5	---
	48-80	1-10	2.0-10.0	5.1-7.8	0-5
CfB:					
Chili-----------	0-9	5-18	8.0-16.0	4.5-7.3	---
	9-35	18-27	8.0-16.0	4.5-6.5	---
	35-45	5-18	6.0-16.0	5.1-6.5	---
	45-80	1-10	2.0-10.0	5.1-7.8	0-5
CfC:					
Chili-----------	0-9	5-18	8.0-16.0	4.5-7.3	---
	9-33	18-27	8.0-16.0	4.5-6.5	---
	33-42	5-18	6.0-16.0	5.1-6.5	---
	42-80	1-10	2.0-10.0	5.1-7.8	0-5
CfD:					
Chili-----------	0-7	5-18	8.0-16.0	4.5-7.3	---
	7-25	18-27	8.0-16.0	4.5-6.5	---
	25-45	5-18	6.0-16.0	5.1-6.5	---
	45-80	1-10	2.0-10.0	5.1-7.8	0-5
CfE:					
Chili-----------	0-5	5-18	8.0-16.0	4.5-7.3	---
	5-24	18-27	8.0-16.0	4.5-6.5	---
	24-33	5-18	6.0-16.0	5.1-6.5	---
	33-80	1-10	2.0-10.0	5.1-7.8	0-5
CgA:					
Chili-----------	0-8	5-18	8.0-16.0	4.5-7.3	---
	8-30	18-27	8.0-16.0	4.5-6.5	---
	30-48	5-18	6.0-16.0	5.1-6.5	---
	48-80	1-10	2.0-10.0	5.1-7.8	0-5
Urban land.					
CgB:					
Chili-----------	0-9	5-18	8.0-16.0	4.5-7.3	---
	9-35	18-27	8.0-16.0	4.5-6.5	---
	35-45	5-18	6.0-16.0	5.1-6.5	---
	45-85	1-10	2.0-10.0	5.1-7.8	0-5

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
CgB:					
Urban land.					
ChA:					
Cidermill-------	0-12	15-25	10.0-20.0	4.5-7.3	---
	12-30	18-30	10.0-18.0	4.5-6.5	---
	30-43	15-30	8.0-18.0	4.5-6.0	---
	43-80	1-10	4.0-10.0	4.5-6.0	---
ChB:					
Cidermill-------	0-10	15-25	10.0-20.0	4.5-7.3	---
	10-32	18-30	10.0-18.0	4.5-6.5	---
	32-50	15-30	8.0-18.0	4.5-6.0	---
	50-80	1-10	4.0-10.0	4.5-6.0	---
CkC:					
Clarksburg------	0-16	10-27	12.0-20.0	5.1-6.5	---
	16-31	22-35	12.0-25.0	5.1-6.5	---
	31-65	22-35	12.0-25.0	5.1-6.5	---
	65-80	22-40	15.0-28.0	5.1-6.5	---
CkD:					
Clarksburg------	0-13	10-27	12.0-20.0	5.1-6.5	---
	13-32	22-35	12.0-25.0	5.1-6.5	---
	32-65	22-35	12.0-25.0	5.1-6.5	---
	65-80	22-40	15.0-28.0	5.1-6.5	---
CoB:					
Coshocton-------	0-10	15-23	10.0-18.0	3.6-7.3	---
	10-15	18-30	10.0-20.0	3.6-5.5	---
	15-37	24-35	12.0-22.0	3.6-5.5	---
	37-50	24-36	10.0-22.0	4.5-6.0	---
	50-55	---	---	---	---
CoC2:					
Coshocton-------	0-7	15-23	10.0-18.0	3.6-7.3	---
	7-14	18-30	10.0-20.0	3.6-5.5	---
	14-46	24-35	12.0-22.0	3.6-5.5	---
	46-58	24-36	10.0-22.0	4.5-6.0	---
	58-60	---	---	---	---
CoD:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-45	24-35	12.0-22.0	3.6-5.5	---
	45-58	24-36	10.0-22.0	4.5-6.0	---
	58-60	---	---	---	---
CoE:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-35	24-35	12.0-22.0	3.6-5.5	---
	35-48	24-36	10.0-22.0	4.5-6.0	---
	48-50	---	---	---	---
CpC:					
Coshocton-------	0-6	15-23	10.0-18.0	4.5-7.3	---
	6-38	18-30	10.0-20.0	3.6-5.5	---
	38-80	24-36	10.0-22.0	4.5-6.0	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
CpD:					
Coshocton-------	0-6	15-23	10.0-18.0	4.5-7.3	---
	6-46	18-30	10.0-20.0	3.6-5.5	---
	46-80	24-36	10.0-22.0	4.5-6.0	---
CrD:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-45	24-35	12.0-22.0	3.6-5.5	---
	45-58	24-36	10.0-22.0	4.5-6.0	---
	58-60	---	---	---	---
Rigley----------	0-10	7-18	---	4.5-7.3	---
	10-57	7-18	---	3.6-5.5	---
	57-70	7-40	---	3.6-5.5	---
CrE:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-35	24-35	12.0-22.0	3.6-5.5	---
	35-48	24-36	10.0-22.0	4.5-6.0	---
	48-60	---	---	---	---
Rigley----------	0-5	7-18	---	4.5-7.3	---
	5-52	7-18	---	3.6-5.5	---
	52-62	7-40	---	3.6-5.5	---
CsD:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-45	24-35	12.0-22.0	3.6-5.5	---
	45-58	24-36	10.0-22.0	4.5-6.0	---
	58-60	---	---	---	---
Westmoreland----	0-7	15-30	15.0-25.0	4.5-6.0	---
	7-38	20-35	10.0-20.0	4.5-6.0	---
	38-55	18-35	10.0-20.0	5.1-6.0	---
	55-84	---	---	---	---
CsE:					
Coshocton-------	0-6	15-23	10.0-18.0	3.6-7.3	---
	6-12	18-30	10.0-20.0	3.6-5.5	---
	12-35	24-35	12.0-22.0	3.6-5.5	---
	35-48	24-36	10.0-22.0	4.5-6.0	---
	48-53	---	---	---	---
Westmoreland----	0-5	15-30	15.0-25.0	4.5-6.0	---
	5-39	20-35	10.0-20.0	4.5-6.0	---
	39-60	18-35	10.0-20.0	5.1-6.0	---
	60-65	---	---	---	---
DeC:					
Dekalb----------	0-5	10-20	10.0-18.0	3.6-5.0	---
	5-24	7-18	5.0-10.0	3.6-5.5	---
	24-36	5-15	5.0-10.0	3.6-5.5	---
	36-38	---	---	---	---
Ds:					
Dumps.					

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
EuA:					
Euclid----------	0-9	12-27	10.0-20.0	4.5-7.3	---
	9-48	18-35	9.0-18.0	4.5-6.0	---
	48-80	15-32	7.0-16.0	5.1-5.5	---
FaB:					
Fairpoint-------	0-10	18-27	7.0-15.0	5.6-7.3	---
	10-80	18-35	7.0-21.0	5.6-7.3	---
FaD:					
Fairpoint-------	0-10	18-27	7.0-15.0	5.6-7.3	---
	10-80	18-35	7.0-21.0	5.6-7.3	---
FaE:					
Fairpoint-------	0-10	18-27	7.0-15.0	5.6-7.3	---
	10-80	18-35	7.0-21.0	5.6-7.3	---
FeB:					
Farmerstown-----	0-4	18-27	7.0-15.0	4.5-7.3	---
	4-30	18-35	7.0-21.0	4.5-5.5	---
	30-80	18-35	7.0-21.0	3.6-5.5	0-10
FeC:					
Farmerstown-----	0-6	18-27	7.0-15.0	4.5-7.3	---
	6-32	18-35	7.0-21.0	4.5-5.5	---
	32-80	18-35	7.0-21.0	3.6-5.5	0-10
FhA:					
Fitchville------	0-9	16-27	14.0-22.0	4.5-7.3	---
	9-40	20-35	10.0-25.0	5.1-5.5	---
	40-80	16-30	---	5.1-5.5	0-5
FhB:					
Fitchville------	0-7	16-27	14.0-22.0	4.5-7.3	---
	7-38	20-35	10.0-25.0	5.1-5.5	---
	38-80	16-30	---	5.1-5.5	0-5
GdB:					
Germano---------	0-8	5-15	5.0-10.0	4.5-7.3	---
	8-24	8-18	5.0-12.0	4.5-6.5	---
	24-32	5-15	4.0-8.0	3.6-5.5	---
GdC2:					
Germano---------	0-10	5-15	5.0-10.0	4.5-7.3	---
	10-24	8-18	5.0-12.0	4.5-6.5	---
	24-29	5-15	4.0-8.0	3.6-5.5	---
GhB:					
Gilpin----------	0-6	15-27	---	3.6-5.5	---
	6-18	18-35	---	3.6-5.5	---
	18-24	15-35	---	3.6-5.5	---
	24-26	---	---	---	---
GhC:					
Gilpin----------	0-5	15-27	---	3.6-5.5	---
	5-23	18-35	---	3.6-5.5	---
	23-32	15-35	---	3.6-5.5	---
	32-37	---	---	---	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
GhD:					
Gilpin----------	0-6	15-27	---	3.6-5.5	---
	6-20	18-35	---	3.6-5.5	---
	20-36	15-35	---	3.6-5.5	---
	36-41	---	---	---	---
GnA:					
Glenford--------	0-9	15-27	10.0-18.0	4.5-7.3	---
	9-24	18-35	10.0-20.0	4.5-6.0	---
	24-35	18-35	10.0-20.0	5.1-5.5	---
	35-80	15-30	6.0-18.0	5.1-5.5	0-5
GnB:					
Glenford--------	0-11	15-27	10.0-18.0	4.5-7.3	---
	11-21	18-35	10.0-20.0	4.5-6.0	---
	21-54	18-35	10.0-20.0	5.1-5.5	---
	54-80	15-30	6.0-18.0	5.1-5.5	0-5
GnC:					
Glenford--------	0-8	15-27	10.0-18.0	4.5-7.3	---
	8-28	18-35	10.0-20.0	4.5-6.0	---
	28-40	18-35	10.0-20.0	5.1-5.5	---
	40-80	15-30	6.0-18.0	5.1-5.5	0-5
GpA:					
Glenford--------	0-8	15-27	10.0-18.0	4.5-7.3	---
	8-29	18-35	10.0-20.0	4.5-6.0	---
	29-48	18-35	10.0-20.0	5.1-5.5	---
	48-80	15-30	6.0-18.0	5.1-5.5	0-5
GuC:					
Guernsey--------	0-7	13-27	12.0-25.0	4.5-7.3	---
	7-23	22-38	14.0-25.0	4.5-6.0	---
	23-46	35-60	24.0-40.0	4.5-7.8	---
	46-80	35-60	24.0-50.0	5.1-8.4	0-15
GuD:					
Guernsey--------	0-9	13-27	12.0-25.0	4.5-7.3	---
	9-21	22-38	14.0-25.0	4.5-6.0	---
	21-53	35-60	24.0-40.0	4.5-7.8	---
	53-80	35-60	24.0-50.0	5.1-8.4	0-15
HaD:					
Hazleton--------	0-8	7-18	15.0-30.0	3.6-5.5	---
	8-40	7-18	5.0-15.0	3.6-5.5	---
	40-55	5-15	5.0-15.0	3.6-5.5	---
	55-57	---	---	---	---
HaE:					
Hazleton--------	0-3	7-18	15.0-30.0	3.6-5.5	---
	3-42	7-18	5.0-15.0	3.6-5.5	---
	42-62	5-15	5.0-15.0	3.6-5.5	---
	62-64	---	---	---	---
HaF:					
Hazleton--------	0-3	7-18	15.0-30.0	3.6-5.5	---
	3-41	7-18	5.0-15.0	3.6-5.5	---
	41-60	5-15	5.0-15.0	3.6-5.5	---
	60-65	---	---	---	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
HeF:					
Hazleton	0-4	7-18	15.0-30.0	3.6-5.5	---
	4-35	7-18	5.0-15.0	3.6-5.5	---
	35-50	5-15	5.0-15.0	3.6-5.5	---
	50-55	---	---	---	---
HoB:					
Homewood	0-9	13-25	10.0-20.0	5.1-7.3	---
	9-27	24-32	10.0-20.0	4.5-6.0	---
	27-56	24-32	10.0-20.0	4.5-5.5	---
	56-80	16-30	8.0-18.0	4.5-7.8	---
HoC:					
Homewood	0-8	13-25	10.0-20.0	5.1-7.3	---
	8-28	24-32	10.0-20.0	4.5-6.0	---
	28-65	24-32	10.0-20.0	4.5-5.5	---
	65-80	16-30	8.0-18.0	4.5-7.8	---
Ht:					
Huntington	0-20	18-30	---	5.6-7.8	---
	20-42	18-30	---	5.6-7.8	---
	42-80	15-30	---	5.6-7.8	---
JmA:					
Jimtown	0-13	10-24	10.0-18.0	4.5-7.3	---
	13-28	18-27	8.0-15.0	4.5-6.5	---
	28-44	8-20	5.0-15.0	5.1-6.5	---
	44-80	4-16	6.0-12.0	5.1-8.4	0-10
KeB:					
Keene	0-9	12-25	10.0-18.0	4.5-7.3	---
	9-20	18-33	12.0-20.0	4.5-5.5	---
	20-25	30-45	15.0-30.0	4.5-5.5	---
	25-52	27-53	12.0-35.0	4.5-6.5	---
	52-57	---	---	---	---
KeC:					
Keene	0-7	12-25	10.0-18.0	4.5-7.3	---
	7-13	18-33	12.0-20.0	4.5-5.5	---
	13-40	30-45	15.0-30.0	4.5-5.5	---
	40-55	27-53	12.0-35.0	4.5-6.5	---
	55-60	---	---	---	---
La:					
Landes	0-15	7-20	6.0-16.0	5.6-8.4	---
	15-38	5-18	3.0-13.0	5.6-8.4	0-10
	38-80	5-18	3.0-13.0	5.1-5.5	0-20
Lb:					
Landes	0-18	10-22	8.0-17.0	5.6-8.4	---
	18-34	5-18	3.0-13.0	5.6-8.4	0-10
	34-80	5-18	3.0-13.0	5.1-5.5	0-20
Lo:					
Lobdell	0-9	15-27	8.0-17.0	5.1-7.3	---
	9-47	18-30	8.0-15.0	5.1-7.3	---
	47-80	15-30	6.0-15.0	5.1-5.5	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
LrB:					
Loudon----------	0-10	15-27	10.0-20.0	5.1-6.0	---
	10-18	25-40	12.0-20.0	4.5-6.0	---
	18-50	35-60	17.0-30.0	4.5-6.0	0-10
	50-65	35-65	17.0-32.0	6.6-8.4	5-30
LrC:					
Loudon----------	0-10	15-27	10.0-20.0	5.1-6.0	---
	10-18	25-40	12.0-20.0	4.5-6.0	---
	18-40	35-60	17.0-30.0	4.5-6.0	0-10
	40-80	35-65	17.0-32.0	6.6-8.4	5-30
LvC:					
Loudonville-----	0-9	13-22	8.0-18.0	4.5-6.0	---
	9-25	20-34	8.0-15.0	4.5-6.0	---
	25-32	12-27	7.0-14.0	4.5-6.0	---
	32-34	---	---	---	---
LvD:					
Loudonville-----	0-8	13-22	8.0-18.0	4.5-6.0	---
	8-17	20-34	8.0-15.0	4.5-6.0	---
	17-28	12-27	7.0-14.0	4.5-6.0	---
	28-33	---	---	---	---
MaB:					
Markland--------	0-12	20-27	14.0-22.0	5.1-7.3	---
	12-43	35-55	14.0-24.0	4.5-7.8	0-5
	43-80	20-50	8.0-16.0	7.4-8.4	20-45
MaC:					
Markland--------	0-7	20-27	14.0-22.0	5.1-7.3	---
	7-38	35-55	14.0-24.0	4.5-7.8	0-5
	38-80	20-50	8.0-16.0	7.4-8.4	20-45
MaD2:					
Markland--------	0-4	20-27	14.0-22.0	5.1-7.3	---
	4-28	35-55	14.0-24.0	4.5-7.8	0-5
	28-80	20-50	8.0-16.0	7.4-8.4	20-45
Mg:					
Melvin----------	0-7	12-17	---	5.6-7.8	---
	7-30	12-35	---	5.6-7.8	---
	30-80	7-35	---	5.6-7.8	---
Mh:					
Melvin----------	0-7	12-17	5.0-10.0	5.6-7.8	---
	7-29	12-35	5.0-20.0	5.6-7.8	---
	29-80	7-35	5.0-20.0	5.6-7.8	---
MnA:					
Mentor----------	0-10	16-24	8.0-20.0	4.5-6.0	---
	10-50	16-35	8.0-20.0	4.5-6.5	---
	50-80	13-30	5.0-18.0	5.1-7.8	0-5
MnB:					
Mentor----------	0-8	16-24	8.0-20.0	4.5-6.0	---
	8-48	16-35	8.0-20.0	4.5-6.5	---
	48-80	13-30	5.0-18.0	5.1-7.8	0-5

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
MnC:					
Mentor----------	0-7	16-24	8.0-20.0	4.5-6.0	---
	7-40	16-35	8.0-20.0	4.5-6.5	---
	40-80	13-30	5.0-18.0	5.1-7.8	0-5
MnD:					
Mentor----------	0-9	16-24	8.0-20.0	4.5-6.0	---
	9-42	16-35	8.0-20.0	4.5-6.5	---
	42-80	13-30	5.0-18.0	5.1-7.8	0-5
Ne:					
Newark----------	0-8	7-27	---	5.6-7.8	---
	8-30	18-35	---	5.6-7.8	---
	30-80	12-40	---	5.6-7.8	---
Nf:					
Newark----------	0-10	7-27	---	5.6-7.8	---
	10-32	18-35	---	5.6-7.8	---
	32-80	12-40	---	5.6-7.8	---
Nn:					
Nolin-----------	0-12	12-35	6.0-20.0	5.6-8.4	---
	12-48	18-35	6.0-20.0	5.6-8.4	---
	48-80	10-30	6.0-18.0	4.5-5.0	---
No:					
Nolin-----------	0-10	12-35	6.0-20.0	5.6-8.4	---
	10-44	18-35	6.0-20.0	5.6-8.4	---
	44-80	10-30	6.0-18.0	4.5-5.0	---
Or:					
Orrville--------	0-10	12-27	10.0-20.0	5.1-7.3	---
	10-48	18-30	10.0-16.0	5.1-6.5	---
	48-80	10-25	5.0-12.0	5.1-7.3	---
Pg:					
Pits, gravel					
Ph:					
Pits, quarry					
RcC:					
Richland--------	0-6	15-27	10.0-20.0	5.1-7.3	---
	6-55	18-35	9.0-18.0	5.1-7.3	---
	55-80	18-35	9.0-18.0	5.6-7.3	---
RcD:					
Richland--------	0-5	15-27	10.0-20.0	5.1-7.3	---
	5-50	18-35	9.0-18.0	5.1-7.3	---
	50-80	18-35	9.0-18.0	5.6-7.3	---
RgC:					
Rigley----------	0-6	7-18	---	4.5-7.3	---
	6-46	7-18	---	3.6-5.5	---
	46-65	7-40	---	3.6-5.5	---
RgD:					
Rigley----------	0-7	7-18	---	4.5-7.3	---
	7-57	7-18	---	3.6-5.5	---
	57-70	7-40	---	3.6-5.5	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
RgE:					
Rigley----------	0-5	7-18	---	4.5-7.3	---
	5-52	7-18	---	3.6-5.5	---
	52-62	7-40	---	3.6-5.5	---
RhD:					
Rigley----------	0-6	7-18	---	4.5-7.3	---
	6-50	7-18	---	3.6-5.5	---
	50-80	7-40	---	3.6-5.5	---
Se:					
Sebring---------	0-7	18-27	15.0-27.0	4.5-7.3	---
	7-48	22-35	12.0-22.0	5.1-6.5	---
	48-80	15-30	10.0-20.0	4.5-5.0	0-5
Th:					
Tioga-----------	0-11	5-18	12.0-28.0	5.1-7.3	---
	11-36	5-18	3.0-15.0	5.1-7.3	---
	36-80	3-15	3.0-15.0	5.6-7.8	---
Tk:					
Tioga-----------	0-9	5-18	12.0-28.0	5.1-7.3	---
	9-27	5-18	3.0-15.0	5.1-7.3	---
	27-80	3-15	3.0-15.0	5.6-7.8	---
Tm:					
Tioga-----------	0-7	5-18	12.0-28.0	5.1-7.3	---
	7-36	5-18	3.0-15.0	5.1-7.3	---
	36-80	3-15	3.0-15.0	5.6-7.8	---
To:					
Tioga-----------	0-11	5-18	12.0-28.0	5.1-7.3	---
	11-36	5-18	3.0-15.0	5.1-7.3	---
	36-80	3-15	3.0-15.0	5.6-7.8	---
Urban land.					
TsB:					
Titusville------	0-9	13-25	7.0-16.0	3.6-6.5	---
	9-26	20-35	9.0-20.0	3.6-6.0	---
	26-42	20-30	10.0-24.0	3.6-5.5	---
	42-70	18-27	8.0-16.0	4.5-6.0	---
	70-80	20-28	8.0-17.0	5.1-7.8	0-5
TsC:					
Titusville------	0-7	13-25	7.0-16.0	3.6-6.5	---
	7-14	20-35	9.0-20.0	3.6-6.0	---
	14-24	20-30	10.0-24.0	3.6-5.5	---
	24-40	18-27	8.0-16.0	4.5-6.0	---
	40-80	20-28	8.0-17.0	5.1-7.8	0-5
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeketal.					

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown-------	0-11	5-15	4.0-12.0	4.5-7.3	---
	11-21	6-18	3.0-9.0	4.5-6.5	---
	21-30	2-10	2.0-6.0	4.5-6.5	---
	30-80	0-5	1.0-6.0	5.1-7.8	0-5
WaB:					
Watertown-------	0-10	5-15	4.0-12.0	4.5-7.3	---
	10-20	6-18	3.0-9.0	4.5-6.5	---
	20-33	2-10	2.0-6.0	4.5-6.5	---
	33-80	0-5	1.0-6.0	5.1-7.8	0-5
WaC:					
Watertown-------	0-9	5-15	4.0-12.0	4.5-7.3	---
	9-18	6-18	3.0-9.0	4.5-6.5	---
	18-26	2-10	2.0-6.0	4.5-6.5	---
	26-80	0-5	1.0-6.0	5.1-7.8	0-5
WaD:					
Watertown-------	0-6	5-15	4.0-12.0	4.5-7.3	---
	6-16	6-18	3.0-9.0	4.5-6.5	---
	16-25	2-10	2.0-6.0	4.5-6.5	---
	25-80	0-5	1.0-6.0	5.1-7.8	0-5
WaF:					
Watertown-------	0-4	5-15	4.0-12.0	4.5-7.3	---
	4-24	6-18	3.0-9.0	4.5-6.5	---
	24-40	2-10	2.0-6.0	4.5-6.5	---
	40-80	0-5	1.0-6.0	5.1-7.8	0-5
Wb:					
Wappinger-------	0-8	5-18	10.0-35.0	5.1-6.0	0-1
	8-26	5-18	8.0-25.0	5.1-7.3	0-5
	26-80	1-8	1.0-10.0	5.6-7.3	0-5
WeC:					
Wellston--------	0-10	13-27	8.0-16.0	5.1-6.5	---
	10-27	18-35	12.0-20.0	4.5-6.0	---
	27-48	15-30	12.0-22.0	4.5-6.0	---
	48-70	15-30	8.0-20.0	4.5-6.0	---
	70-72	---	---	---	---
WhC:					
Westmoreland----	0-8	15-30	15.0-25.0	4.5-6.0	---
	8-38	20-35	10.0-20.0	4.5-6.0	---
	38-48	18-35	10.0-20.0	5.1-6.0	---
	48-53	---	---	---	---
WhD:					
Westmoreland----	0-7	15-30	15.0-25.0	4.5-6.0	---
	7-38	20-35	10.0-20.0	4.5-6.0	---
	38-55	18-35	10.0-20.0	5.1-6.0	---
	55-82	---	---	---	---

Table 22.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	Pct	meq/100g	pH	Pct
WhE:					
Westmoreland----	0-5	15-30	15.0-25.0	4.5-6.0	---
	5-32	20-35	10.0-20.0	4.5-6.0	---
	32-55	18-35	10.0-20.0	5.1-6.0	---
	55-82	---	---	---	---
WnA:					
Wheeling--------	0-10	12-20	---	5.1-6.5	---
	10-48	18-30	---	5.1-6.0	---
	48-80	8-15	---	5.1-6.0	---
WnB:					
Wheeling--------	0-8	12-20	---	5.1-6.5	---
	8-45	18-30	---	5.1-6.0	---
	45-80	8-15	---	5.1-6.0	---
Zp:					
Zipp------------	0-8	27-40	12.0-30.0	5.6-7.3	---
	8-30	40-55	16.0-35.0	5.1-5.5	---
	30-80	40-55	16.0-35.0	5.1-6.0	0-15

Table 23.--Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not available.)

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
AaB:									
Aaron-----------	C	None	---	---	1.5-3.0	Perched	Nov-Mar	---	---
AaC2:									
Aaron-----------	C	None	---	---	1.5-3.0	Perched	Nov-Mar	---	---
AfB:									
Alford----------	B	None	---	---	>6.0	---	---	---	---
AfC2:									
Alford----------	B	None	---	---	>6.0	---	---	---	---
BgB:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BgD:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BgE:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BhB:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BhD:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BhF:									
Bethesda--------	C	None	---	---	>6.0	---	---	---	---
BrD:									
Brownsville-----	C	None	---	---	>6.0	---	---	---	---
BrE:									
Brownsville-----	C	None	---	---	>6.0	---	---	---	---
BrF:									
Brownsville-----	C	None	---	---	>6.0	---	---	---	---
BtF:									
Brownsville-----	C	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
CdA:									
Caneadea--------	D	None	---	---	1.0-2.5	Perched	Dec-May	---	---
CfA:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
CfB:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
CfC:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
CfD:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
CfE:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
CgA:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
Urban land.									
CgB:									
Chili-----------	B	None	---	---	>6.0	---	---	---	---
Urban land.									
ChA:									
Cidermill-------	B	None	---	---	>6.0	---	---	---	---
ChB:									
Cidermill-------	B	None	---	---	>6.0	---	---	---	---
CkC:									
Clarksburg------	C	None	---	---	1.5-3.0	Perched	Nov-Mar	---	---
CkD:									
Clarksburg------	C	None	---	---	1.5-3.0	Perched	Nov-Mar	---	---
CoB:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CoC2:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CoD:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CoE:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CpC:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CpD:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
CrD:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
Rigley----------	B	None	---	---	>6.0	---	---	---	---
CrE:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
Rigley----------	B	None	---	---	>6.0	---	---	---	---
CsD:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
Westmoreland----	B	None	---	---	>6.0	---	---	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
CsE:									
Coshocton-------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
Westmoreland----	B	None	---	---	>6.0	---	---	---	---
DeC:									
Dekalb----------	A	None	---	---	>6.0	---	---	---	---
Ds:									
Dumps.									
EuA:									
Euclid----------	C	Occasional	Very brief	Dec-Jun	1.0-2.5	Apparent	Nov-Jun	---	---
FaB:									
Fairpoint-------	C	None	---	---	>6.0	---	---	---	---
FaD:									
Fairpoint-------	C	None	---	---	>6.0	---	---	---	---
FaE:									
Fairpoint-------	C	None	---	---	>6.0	---	---	---	---
FeB:									
Farmerstown-----	C	None	---	---	>6.0	---	---	---	---
FeC:									
Farmerstown-----	C	None	---	---	>6.0	---	---	---	---
FhA:									
Fitchville------	C	None	---	---	1.0-2.5	Perched	Nov-May	---	---
FhB:									
Fitchville------	C	None	---	---	1.0-2.5	Perched	Nov-May	---	---
GdB:									
Germano---------	B	None	---	---	>6.0	---	---	---	---
GdC2:									
Germano---------	B	None	---	---	>6.0	---	---	---	---
GhB:									
Gilpin----------	C	None	---	---	>6.0	---	---	---	---
GhC:									
Gilpin----------	C	None	---	---	>6.0	---	---	---	---
GhD:									
Gilpin----------	C	None	---	---	>6.0	---	---	---	---
GnA:									
Glenford--------	C	None	---	---	2.0-3.5	Perched	Nov-May	---	---
GnB:									
Glenford--------	C	None	---	---	2.0-3.5	Perched	Nov-May	---	---
GnC:									
Glenford--------	C	None	---	---	2.0-3.5	Perched	Nov-May	---	---
GpA:									
Glenford--------	C	Occasional	Brief	Jan-Apr	2.0-3.5	Perched	Nov-May	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
GuC:									
Guernsey--------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
GuD:									
Guernsey--------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
HaD:									
Hazleton--------	B	None	---	---	>6.0	---	---	---	---
HaE:									
Hazleton--------	B	None	---	---	>6.0	---	---	---	---
HaF:									
Hazleton--------	B	None	---	---	>6.0	---	---	---	---
HeF:									
Hazleton--------	B	None	---	---	>6.0	---	---	---	---
HoB:									
Homewood--------	C	None	---	---	2.5-4.0	Perched	Nov-Apr	---	---
HoC:									
Homewood--------	C	None	---	---	2.5-4.0	Perched	Nov-Apr	---	---
Ht:									
Huntington------	B	Rare	Brief	Dec-May	>6.0	---	---	---	---
JmA:									
Jimtown---------	C	None	---	---	1.0-2.5	Apparent	Dec-May	---	---
KeB:									
Keene-----------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
KeC:									
Keene-----------	C	None	---	---	1.5-3.0	Perched	Jan-Apr	---	---
La:									
Landes----------	B	Rare	---	---	>6.0	---	---	---	---
Lb:									
Landes----------	B	Occasional	Brief	Jan-Jun	>6.0	---	---	---	---
Lo:									
Lobdell---------	B	Occasional	Brief	Jan-Apr	2.0-3.5	Apparent	Dec-Apr	---	---
LrB:									
Loudon----------	C	None	---	---	2.0-3.5	Perched	Jan-Apr	---	---
LrC:									
Loudon----------	C	None	---	---	2.0-3.5	Perched	Jan-Apr	---	---
LvC:									
Loudonville-----	C	None	---	---	>6.0	---	---	---	---
LvD:									
Loudonville-----	C	None	---	---	>6.0	---	---	---	---
MaB:									
Markland--------	C	None	---	---	3.0-6.0	Apparent	Dec-Apr	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
MaC:									
Markland--------	C	None	---	---	3.0-6.0	Apparent	Dec-Apr	---	---
MaD2:									
Markland--------	C	None	---	---	3.0-6.0	Apparent	Dec-Apr	---	---
Mg:									
Melvin----------	D	Frequent	Brief	Dec-May	0.0-1.0	Apparent	Dec-May	---	---
Mh:									
Melvin----------	D	Frequent	Very long	Sep-Jun	+2.0-0.5	Apparent	Jan-Dec	Long	2.0
MnA:									
Mentor----------	B	None	---	---	4.0-6.0	Apparent	Feb-Mar	---	---
MnB:									
Mentor----------	B	None	---	---	4.0-6.0	Apparent	Feb-Mar	---	---
MnC:									
Mentor----------	B	None	---	---	4.0-6.0	Apparent	Feb-Mar	---	---
MnD:									
Mentor----------	B	None	---	---	4.0-6.0	Apparent	Feb-Mar	---	---
Ne:									
Newark----------	C	Occasional	Long	Jan-Apr	0.5-1.5	Apparent	Dec-May	---	---
Nf:									
Newark----------	C	Frequent	Long	Jan-Apr	0.5-1.5	Apparent	Dec-May	---	---
Nn:									
Nolin-----------	B	Rare	---	---	3.0-6.0	Apparent	Feb-Mar	---	---
No:									
Nolin-----------	B	Occasional	Long	Feb-May	3.0-6.0	Apparent	Feb-Mar	---	---
Or:									
Orrville--------	C	Occasional	Brief	Nov-May	1.0-2.5	Apparent	Nov-Jun	---	---
Pg:									
Pits, gravel.									
Ph:									
Pits, quarry.									
RcC:									
Richland--------	B	None	---	---	3.0-6.0	Apparent	Nov-May	---	---
RcD:									
Richland--------	B	None	---	---	3.0-6.0	Apparent	Nov-May	---	---
RgC:									
Rigley----------	B	None	---	---	>6.0	---	---	---	---
RgD:									
Rigley----------	B	None	---	---	>6.0	---	---	---	---
RgE:									
Rigley----------	B	None	---	---	>6.0	---	---	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
RhD:									
Rigley----------	B	None	---	---	>6.0	---	---	---	---
Se:									
Sebring---------	B/D	None	---	---	+1.0-1.0	Apparent	Nov-Jun	Brief	1.0
Th:									
Tioga-----------	B	Rare	---	---	3.0-6.0	Apparent	Feb-Apr	---	---
Tk:									
Tioga-----------	B	Occasional	Brief	Nov-May	3.0-6.0	Apparent	Feb-Apr	---	---
Tm:									
Tioga-----------	B	Frequent	Brief	Nov-May	3.0-6.0	Apparent	Feb-Apr	---	---
To:									
Tioga-----------	B	Rare	---	---	3.0-6.0	Apparent	Feb-Apr	---	---
Urban land.									
TsB:									
Titusville------	C	None	---	---	1.5-3.0	Perched	Nov-May	---	---
TsC:									
Titusville------	C	None	---	---	1.5-3.0	Perched	Nov-May	---	---
Ug:									
Udorthents, loamy.									
Uh:									
Udorthents, loamy-skeletal.									
Up:									
Udorthents.									
Pits.									
WaA:									
Watertown-------	B	None	---	---	>6.0	---	---	---	---
WaB:									
Watertown-------	B	None	---	---	>6.0	---	---	---	---
WaC:									
Watertown-------	B	None	---	---	>6.0	---	---	---	---
WaD:									
Watertown-------	B	None	---	---	>6.0	---	---	---	---
WaF:									
Watertown-------	B	None	---	---	>6.0	---	---	---	---
Wb:									
Wappinger-------	B	Rare	---	---	3.0-5.0	Apparent	Feb-Apr	---	---
WeC:									
Wellston--------	B	None	---	---	>6.0	---	---	---	---

Table 23.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
WhC:									
Westmoreland----	B	None	---	---	>6.0	---	---	---	---
WhD:									
Westmoreland----	B	None	---	---	>6.0	---	---	---	---
WhE:									
Westmoreland----	B	None	---	---	>6.0	---	---	---	---
WnA:									
Wheeling--------	B	None	---	---	>6.0	---	---	---	---
WnB:									
Wheeling--------	B	None	---	---	>6.0	---	---	---	---
Zp:									
Zipp------------	D	Frequent	Long	Dec-May	+0.5-1.0	Apparent	Dec-May	Long	0.5

Table 24.--Soil Features

("Hardness" and "potential frost action" and terms such as "high" and "moderate" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not available.)

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
AaB:					
Aaron	40-60	Soft	High	High	Moderate
AaC2:					
Aaron	40-60	Soft	High	High	Moderate
AfB:					
Alford	>80	---	High	Moderate	High
AfC2:					
Alford	>80	---	High	Moderate	High
BgB:					
Bethesda	>60	---	Moderate	Moderate	High
BgD:					
Bethesda	>60	---	Moderate	Moderate	High
BgE:					
Bethesda	>60	---	Moderate	Moderate	High
BhB:					
Bethesda	>60	---	Moderate	Moderate	High
BhD:					
Bethesda	>60	---	Moderate	Moderate	High
BhF:					
Bethesda	>60	---	Moderate	Moderate	High
BrD:					
Brownsville	40-72	Hard	Moderate	Low	High
BrE:					
Brownsville	40-72	Hard	Moderate	Low	High
BrF:					
Brownsville	40-72	Hard	Moderate	Low	High
BtF:					
Brownsville	40-72	Hard	Moderate	Low	High
Rock outcrop.					
CdA:					
Caneadea	>60	---	High	High	Moderate
CfA:					
Chili	>60	---	Moderate	Low	High
CfB:					
Chili	>60	---	Moderate	Low	High
CfC:					
Chili	>60	---	Moderate	Low	High

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
CfD:					
Chili-----------	>60	---	Moderate	Low	High
CfE:					
Chili-----------	>60	---	Moderate	Low	High
CgA:					
Chili-----------	>60	---	Moderate	Low	High
Urban land.					
CgB:					
Chili-----------	>60	---	Moderate	Low	High
Urban land.					
ChA:					
Cidermill-------	>60	---	Moderate	Low	High
ChB:					
Cidermill-------	>60	---	Moderate	Low	High
CkC:					
Clarksburg------	>60	---	Moderate	Moderate	Moderate
CkD:					
Clarksburg------	>60	---	Moderate	Moderate	Moderate
CoB:					
Coshocton-------	40-84	Hard	High	High	High
CoC2:					
Coshocton-------	40-84	Hard	High	High	High
CoD:					
Coshocton-------	40-84	Hard	High	High	High
CoE:					
Coshocton-------	40-84	Hard	High	High	High
CpC:					
Coshocton-------	40-84	Hard	High	High	High
CpD:					
Coshocton-------	40-84	Hard	High	High	High
CrD:					
Coshocton-------	40-84	Hard	High	High	High
Rigley----------	>60	---	None	Low	High
CrE:					
Coshocton-------	40-84	Hard	High	High	High
Rigley----------	>60	---	None	Low	High
CsD:					
Coshocton-------	40-84	Hard	High	High	High
Westmoreland----	>40	Soft	Moderate	Low	High

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
CsE:					
Coshocton-------	40-84	Hard	High	High	High
Westmoreland----	>40	Soft	Moderate	Low	High
DeC:					
Dekalb----------	20-40	Hard	Low	Low	High
Ds:					
Dumps.					
EuA:					
Euclid----------	>60	---	High	High	High
FaB:					
Fairpoint-------	>60	---	Moderate	High	Moderate
FaD:					
Fairpoint-------	>60	---	Moderate	High	Moderate
FaE:					
Fairpoint-------	>60	---	Moderate	High	Moderate
FeB:					
Farmerstown-----	>60	---	Moderate	Moderate	High
FeC:					
Farmerstown-----	>60	---	Moderate	Moderate	High
FhA:					
Fitchville------	>60	---	High	High	Moderate
FhB:					
Fitchville------	>60	---	High	High	Moderate
GdB:					
Germano---------	20-40	Soft	Moderate	Low	High
GdC2:					
Germano---------	20-40	Soft	Moderate	Low	High
GhB:					
Gilpin----------	20-40	Hard	Moderate	Low	High
GhC:					
Gilpin----------	20-40	Hard	Moderate	Low	High
GhD:					
Gilpin----------	20-40	Hard	Moderate	Low	High
GnA:					
Glenford--------	>60	---	High	Moderate	Moderate
GnB:					
Glenford--------	>60	---	High	Moderate	Moderate
GnC:					
Glenford--------	>60	---	High	Moderate	Moderate
GpA:					
Glenford--------	>60	---	High	Moderate	Moderate

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
GuC:					
Guernsey--------	>50	Soft	High	High	Moderate
GuD:					
Guernsey--------	>50	Soft	High	High	Moderate
HaD:					
Hazleton--------	40-72	Hard	Moderate	Low	High
HaE:					
Hazleton--------	40-72	Hard	Moderate	Low	High
HaF:					
Hazleton--------	40-72	Hard	Moderate	Low	High
HeF:					
Hazleton--------	40-72	Hard	Moderate	Low	High
HoB:					
Homewood--------	>60	---	Moderate	Low	Moderate
HoC:					
Homewood--------	>60	---	Moderate	Low	Moderate
Ht:					
Huntington------	>60	---	High	Low	Moderate
JmA:					
Jimtown---------	>60	---	High	High	High
KeB:					
Keene-----------	40-80	Soft	High	High	High
KeC:					
Keene-----------	40-80	Soft	High	High	High
La:					
Landes----------	>60	---	Moderate	Low	Low
Lb:					
Landes----------	>60	---	Moderate	Low	Low
Lo:					
Lobdell---------	>60	---	High	Low	Moderate
LrB:					
Loudon----------	40-84	Soft	High	High	Moderate
LrC:					
Loudon----------	40-84	Soft	High	High	Moderate
LvC:					
Loudonville-----	20-40	Hard	Moderate	Moderate	High
LvD:					
Loudonville-----	20-40	Hard	Moderate	Moderate	High
MaB:					
Markland--------	>60	---	Moderate	High	Moderate
MaC:					
Markland--------	>60	---	Moderate	High	Moderate

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
MaD2: Markland	>60	---	Moderate	High	Moderate
Mg: Melvin	>60	---	High	High	Low
Mh: Melvin	>60	---	None	High	Low
MnA: Mentor	>60	---	High	Moderate	High
MnB: Mentor	>60	---	High	Moderate	High
MnC: Mentor	>60	---	High	Moderate	High
MnD: Mentor	>60	---	High	Moderate	High
Ne: Newark	>60	---	High	High	Low
Nf: Newark	>60	---	High	High	Low
Nn: Nolin	>60	---	None	Low	Moderate
No: Nolin	>60	---	None	Low	Moderate
Or: Orrville	>60	---	High	High	Moderate
Pg: Pits, gravel.					
Ph: Pits, quarry.					
RcC: Richland	>60	---	Moderate	Moderate	Moderate
RcD: Richland	>60	---	Moderate	Moderate	Moderate
RgC: Rigley	>60	---	None	Low	High
RgD: Rigley	>60	---	None	Low	High
RgE: Rigley	>60	---	None	Low	High
RhD: Rigley	>60	---	High	Low	High
Se: Sebring	>60	---	High	High	Moderate

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
Th:					
Tioga	>60	---	Moderate	Low	Moderate
Tk:					
Tioga	>60	---	Moderate	Low	Moderate
Tm:					
Tioga	>60	---	Moderate	Low	Moderate
To:					
Tioga	>60	---	Moderate	Low	Moderate
Urban land.					
TsB:					
Titusville	>60	---	High	Moderate	High
TsC:					
Titusville	>60	---	High	Moderate	High
Ug:					
Udorthents, loamy.					
Uh:					
Udorthents, loamy-skeletal.					
Up:					
Udorthents.					
Pits.					
WaA:					
Watertown	>60	---	Moderate	Low	High
WaB:					
Watertown	>60	---	Moderate	Low	High
WaC:					
Watertown	>60	---	Moderate	Low	High
WaD:					
Watertown	>60	---	Moderate	Low	High
WaF:					
Watertown	>60	---	Moderate	Low	High
Wb:					
Wappinger	>60	---	Moderate	Low	Low
WeC:					
Wellston	40-72	Hard	High	Moderate	High
WhC:					
Westmoreland	>40	Soft	Moderate	Low	High
WhD:					
Westmoreland	>40	Soft	Moderate	Low	High
WhE:					
Westmoreland	>40	Soft	Moderate	Low	High

Table 24.--Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
WnA:					
Wheeling	>60	---	Moderate	Low	Moderate
WnB:					
Wheeling	>60	---	Moderate	Low	Moderate
Zp:					
Zipp	>60	---	Moderate	High	Low

Table 25.--Classification of the Soils

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series. Classification is based on soil taxonomy at the time the field work was completed and does not include recent amendments to soil taxonomy. For more detailed information, contact the local office of the Natural Resources Conservation Service.)

Soil name	Family or higher taxonomic class
Aaron	Aquic Hapludalfs, fine, mixed, mesic
Alford	Ultic Hapludalfs, fine-silty, mixed, mesic
Bethesda	Typic Udorthents, loamy-skeletal, mixed, acid, mesic
Brownsville	Typic Dystrochrepts, loamy-skeletal, mixed, mesic
Caneadea	Aeric Ochraqualfs, fine, illitic, mesic
Chili	Typic Hapludalfs, fine-loamy, mixed, mesic
Cidermill	Ultic Hapludalfs, fine-silty, mixed, mesic
*Clarksburg	Typic Fragiudalfs, fine-loamy, mixed, mesic
Coshocton	Aquultic Hapludalfs, fine-loamy, mixed, mesic
Dekalb	Typic Dystrochrepts, loamy-skeletal, mixed, mesic
Euclid	Aeric Haplaquepts, fine-silty, mixed, nonacid, mesic
Fairpoint	Typic Udorthents, loamy-skeletal, mixed, nonacid, mesic
Farmerstown	Typic Udorthents, fine-loamy, mixed, acid, mesic
Fitchville	Aeric Ochraqualfs, fine-silty, mixed, mesic
Germano	Typic Hapludults, coarse-loamy, mixed, mesic
Gilpin	Typic Hapludults, fine-loamy, mixed, mesic
Glenford	Aquic Hapludalfs, fine-silty, mixed, mesic
Guernsey	Aquic Hapludalfs, fine, mixed, mesic
Hazleton	Typic Dystrochrepts, loamy-skeletal, mixed, mesic
Homewood	Typic Fragiudalfs, fine-loamy, mixed, mesic
Huntington	Fluventic Hapludolls, fine-silty, mixed, mesic
Jimtown	Aeric Ochraqualfs, fine-loamy, mixed, mesic
Keene	Aquic Hapludalfs, fine-silty, mixed, mesic
Landes	Fluventic Hapludolls, coarse-loamy, mixed, mesic
Lobdell	Fluvaquentic Eutrochrepts, fine-loamy, mixed, mesic
*Loudon	Aquic Hapludalfs, fine, mixed, mesic
Loudonville	Ultic Hapludalfs, fine-loamy, mixed, mesic
Markland	Typic Hapludalfs, fine, mixed, mesic
Melvin	Typic Fluvaquents, fine-silty, mixed, nonacid, mesic
Mentor	Typic Hapludalfs, fine-silty, mixed, mesic
Newark	Aeric Fluvaquents, fine-silty, mixed, nonacid, mesic
Nolin	Dystric Fluventic Eutrochrepts, fine-silty, mixed, mesic
Orrville	Aeric Fluvaquents, fine-loamy, mixed, nonacid, mesic
Richland	Typic Hapludalfs, fine-loamy, mixed, mesic
Rigley	Typic Hapludults, coarse-loamy, mixed, mesic
Sebring	Typic Ochraqualfs, fine-silty, mixed, mesic
Tioga	Dystric Fluventic Eutrochrepts, coarse-loamy, mixed, mesic
Titusville	Aquic Fragiudalfs, fine-loamy, mixed, mesic
Udorthents	Udorthents
Wappinger	Dystric Fluventic Eutrochrepts, coarse-loamy over sandy or sandy skeletal, mixed, mesic
Watertown	Ultic Hapludalfs, coarse-loamy, mixed, mesic
Wellston	Ultic Hapludalfs, fine-silty, mixed, mesic
Westmoreland	Ultic Hapludalfs, fine-loamy, mixed, mesic
Wheeling	Ultic Hapludalfs, fine-loamy, mixed, mesic
Zipp	Typic Haplaquepts, fine, mixed, nonacid, mesic

Interpretive Groups

Interpretive Groups

(Dashes indicate that the soil was not assigned to the interpretive group.)

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
AaB:				
Aaron	IIe	Yes	4C	A-6
AaC2:				
Aaron	IIIe	No	4C	A-6
AfB:				
Alford	IIe	Yes	5A	A-6
AfC2:				
Alford	IIIe	No	5A	A-6
BgB:				
Bethesda	IIIs	No	---	B-4
BgD:				
Bethesda	IVs	No	---	B-4
BgE:				
Bethesda	VIe	No	---	E-2
BhB:				
Bethesda	VIs	No	4F	E-3
BhD:				
Bethesda	VIs	No	4R	E-3
BhF:				
Bethesda	VIIe	No	4R	H-1
BrD	IVe	No		B-1
Brownsville (north aspect)			4R	
Brownsville (south aspect)			3R	
BrE	VIe	No		B-2
Brownsville (north aspect)			4R	
Brownsville (south aspect)			3R	
BrF	VIIe	No		H-1
Brownsville (north aspect)			4R	
Brownsville (south aspect)			3R	
BtF	VIIe	No		
Brownsville (north aspect)			4R	H-1
Brownsville (south aspect)			3R	H-1
Rock outcrop.				
CdA:				
Caneadea	IIIw	No	4C	C-2
CfA:				
Chili	IIs	Yes	4A	A-1
CfB:				
Chili	IIe	Yes	4A	A-1
CfC:				
Chili	IIIe	No	4A	A-1
CfD:				
Chili	VIe	No	4R	A-2

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
CfE:				
Chili	VIIe	No	4R	A-3
CgA:				
Chili	IIs	No	4A	---
Urban land.				
CgB:				
Chili	IIe	No	4A	---
Urban land.				
ChA:				
Cidermill	I	Yes	5A	A-1
ChB:				
Cidermill	IIe	Yes	5A	A-1
CkC:				
Clarksburg	IIIe	No	4A	F-3
CkD:				
Clarksburg	IVe	No	4R	F-3
CoB:				
Coshocton	IIe	Yes	4A	A-6
CoC2:				
Coshocton	IIIe	No	4A	A-6
CoD	IVe	No		A-2
Coshocton (north aspect)			4R	
Coshocton (south aspect)			3R	
CoE	VIe	No		A-3
Coshocton (north aspect)			4R	
Coshocton (south aspect)			3R	
CpC:				
Coshocton	VIs	No	4A	A-4
CpD	VIs	No		A-4
Coshocton (north aspect)			4R	
Coshocton (south aspect)			3R	
CrD		No		A-2
Coshocton (north aspect)	IVe		4R	
Coshocton (south aspect)	IVe		3R	
Rigley (north aspect)	VIe		4R	
Rigley (south aspect)	VIe		3R	
CrE		No		A-3
Coshocton (north aspect)	VIe		4R	
Coshocton (south aspect)	VIe		3R	
Rigley (north aspect)	VIIe		4R	
Rigley (south aspect)	VIIe		3R	
CsD	IVe	No		A-2
Coshocton (north aspect)			4R	
Coshocton (south aspect)			3R	
Westmoreland (north aspect)			4R	
Westmoreland (south aspect)			4R	

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
CsE	VIe	No		A-3
Coshocton (north aspect)			4R	
Coshocton (south aspect)			3R	
Westmoreland (north aspect)			4R	
Westmoreland (south aspect)			4R	
DeC:				
Dekalb	IIIe	No	3F	F-1
Ds:				
Dumps, mine	---	No	---	---
EuA:				
Euclid	IIw	Yes*	5A	C-3
FaB:				
Fairpoint	IIIs	No	---	B-4
FaD:				
Fairpoint	IVs	No	---	B-4
FaE:				
Fairpoint	VIe	No	---	E-2
FeB:				
Farmerstown	IIIe	No	---	B-4
FeC:				
Farmerstown	IVe	No	---	B-4
FhA:				
Fitchville	IIw	Yes*	5A	C-1
FhB:				
Fitchville	IIe	Yes*	5A	C-1
GdB:				
Germano	IIe	Yes	4D	F-1
GdC2:				
Germano	IIIe	No	4D	F-1
GhB:				
Gilpin	IIe	Yes	4A	F-1
GhC:				
Gilpin	IIIe	No	4A	F-1
GhD	IVe	No		F-1
Gilpin (north aspect)			4R	
Gilpin (south aspect)			4R	
GnA:				
Glenford	I	Yes	5A	A-6
GnB:				
Glenford	IIe	Yes	5A	A-6
GnC:				
Glenford	IIIe	No	5A	A-6

See footnotes at end of table.

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
GpA:				
Glenford	I	Yes	5A	A-5
GuC:				
Guernsey	IIIe	No	4A	A-6
GuD	IVe	No		A-2
Guernsey (north aspect)			4R	
Guernsey (south aspect)			4R	
HaD	IVe	No		B-1
Hazleton (north aspect)			4R	
Hazleton (south aspect)			3R	
HaE	VIe	No		B-2
Hazleton (north aspect)			4R	
Hazleton (south aspect)			3R	
HaF	VIIe	No		H-1
Hazleton (north aspect)			4R	
Hazleton (south aspect)			3R	
HeF	VIIs	No		H-1
Hazleton (north aspect)			4R	
Hazleton (south aspect)			3R	
HoB:				
Homewood	IIe	Yes	5D	F-3
HoC:				
Homewood	IIIe	No	5D	F-3
Ht:				
Huntington	I	Yes	5A	A-5
JmA:				
Jimtown	IIw	Yes*	5A	C-1
KeB:				
Keene	IIe	Yes	4A	A-6
KeC:				
Keene	IIIe	No	4A	A-6
La:				
Landes	IIs	Yes	5A	A-5
Lb:				
Landes	IIw	Yes	5A	A-5
Lo:				
Lobdell	IIw	Yes	5A	A-5
LrB:				
Loudon	IIe	Yes	4C	A-6
LrC:				
Loudon	IIIe	No	4C	A-6
LvC:				
Loudonville	IIIe	No	4D	F-1

See footnotes at end of table.

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
LvD:				
Loudonville	IVe	No	4R	F-1
MaB:				
Markland	IIIe	Yes	4C	F-5
MaC:				
Markland	IVe	No	4C	F-5
MaD2:				
Markland	VIIe	No	4R	F-6
Mg:				
Melvin	IIIw	Yes**	6W	C-3
Mh:				
Melvin	Vw	No	5W	C-3
MnA:				
Mentor	I	Yes	5A	A-6
MnB:				
Mentor	IIe	Yes	5A	A-6
MnC:				
Mentor	IIIe	No	5A	A-6
MnD:				
Mentor	VIe	No	5R	A-2
Ne:				
Newark	IIw	Yes*	5W	C-3
Nf:				
Newark	IIIw	Yes**	5W	C-3
Nn:				
Nolin	I	Yes	5A	A-5
No:				
Nolin	IIw	Yes	5A	A-5
Or:				
Orrville	IIw	Yes*	5A	C-3
Pg:				
Pits, gravel	---	No	---	---
Ph:				
Pits, quarry	---	No	---	---
RcC:				
Richland	IIIe	No	5A	A-1
RcD	IVe	No		A-2
Richland (north aspect)			5R	
Richland (south aspect)			4R	
RgC:				
Rigley	IIIe	No	4A	A-1

See footnotes at end of table.

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
RgD	IVe	No		A-2
Rigley (north aspect)			4R	
Rigley (south aspect)			3R	
RgE	VIe	No		A-3
Rigley (north aspect)			4R	
Rigley (south aspect)			3R	
RhD	VIs	No		A-4
Rigley (north aspect)			4R	
Rigley (south aspect)			3R	
Se:				
Sebring	IIIw	Yes*	5W	C-2
Th:				
Tioga	I	Yes	4A	A-5
Tk:				
Tioga	I	Yes	4A	A-5
Tm:				
Tioga	IIw	Yes***	4A	A-5
To:				
Tioga	I	No	4A	---
Urban land.				
TsB:				
Titusville	IIe	Yes	5D	F-3
TsC:				
Titusville	IIIe	No	5D	F-3
Ug:				
Udorthents, loamy	---	No	---	---
Uh:				
Udorthents, loamy-skeletal	---	No	---	---
Up:				
Udorthents	---	No	---	---
Pits.				
WaA:				
Watertown	IIIs	No	4A	B-1
WaB:				
Watertown	IIIs	No	4A	B-1
WaC:				
Watertown	IIIe	No	4A	B-1
WaD:				
Watertown	VIe	No	4R	B-1
WaF	VIIe	No		H-1
Watertown (north aspect)			4R	
Watertown (south aspect)			3R	

See footnotes at end of table.

Interpretive Groups--Continued

Soil name and map symbol	Land capability	Prime farmland	Woodland ordination symbol	Pasture and hayland suitability group
Wb:				
Wappinger	I	Yes	4A	A-5
WeC:				
Wellston	IIIe	No	4A	A-6
WhC:				
Westmoreland	IIIe	No	4A	A-1
WhD	IVe	No		A-2
Westmoreland (north aspect)			4R	
Westmoreland (south aspect)			4R	
WhE	VIe	No		A-3
Westmoreland (north aspect)			4R	
Westmoreland (south aspect)			4R	
WnA:				
Wheeling	I	Yes	4A	A-1
WnB:				
Wheeling	IIe	Yes	4A	A-1
Zp:				
Zipp	IVw	Yes**	5W	C-3

* Where drained.

** Where drained and either protected from flooding or not frequently flooded during the growing season.

*** Where protected from flooding or not frequently flooded during the growing season.